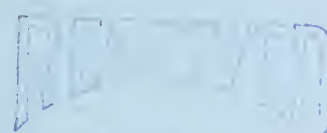


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**Report of the
Governor's Task Force
on Waste Management**

February, 1981

March 9, 1981

Governor James B. Hunt, Jr.
State of North Carolina
State Capitol Building
Raleigh, North Carolina, 27611

Dear Governor Hunt:

In behalf of the Task Force on Waste Management which you appointed during July 1980, I am pleased to transmit herewith our report on the problem of waste management in North Carolina and suggested solutions for handling these problems.

The members of the Task Force were honored to have been selected for this vitally important assignment. They labored diligently by reading many reports, attending meetings throughout the entire period, listening to and questioning national experts on various aspects concerning the technology of waste management, conducting public hearings throughout the state in seven sites, and by contributing their wisdom and experience to this report. The report delineates as clearly as possible the issues, alternative options for handling these issues, and recommends strategies and legislative proposals for your consideration.

Owing to the constraint of time imposed by the convening of the General Assembly, it was not possible to resolve all of the issues confronting the state with regard to waste management. The Task Force was fortunate in being able to study the waste management strategy of other states and to adopt those ideas and techniques applicable to North Carolina.

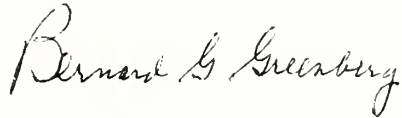
It is hoped that you will agree to appoint the recommended Governor's Waste Management Board as soon as possible so that the work of the Task Force may be continued to resolve those issues being referred to it in this report.



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The members wish to express their willingness to help you and any state agency involved in waste management as well as the newly proposed Board to implement and carry forward any of the recommendations.

Sincerely,

A handwritten signature in cursive script, reading "Bernard G. Greenberg". The ink is dark and the handwriting is fluid, with a large initial 'B' and a long, sweeping 'G'.

Bernard G. Greenberg

Chairman, Governor's Task Force
on Waste Management

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EXECUTIVE SUMMARY

The proper and safe management of hazardous and low-level radioactive waste has become one of the most crucial health, environmental, and economic issues facing our state and nation today. Each year approximately 120 million gallons of hazardous waste and 200,000 cubic feet of low-level radioactive waste are generated in North Carolina in the process of meeting its citizens' demands for modern day goods and services. North Carolina ranks as the eleventh largest generator of hazardous waste and the fourth largest generator of low-level radioactive waste in the nation.

In the past, North Carolina generators have depended upon facilities in other states to treat and dispose of their waste materials. However, these states are reducing by indirect means the amount of out-of-state waste they will accept and North Carolina must now take responsibility for managing its own waste. The State's future depends on its ability and commitment to seek an acceptable solution for this problem. A well-conceived and strictly enforced waste management system that provides for waste prevention and in-state treatment and disposal of the non-preventable wastes will enable North Carolina to prevent Love Canals and future dumpings of PCB along its highways.

The thrust of this report is that the state must develop a system of waste management which is flexible enough to adjust to emergencies and changing technology, but is firm in its determination to prevent the generation of waste that cannot be disposed of safely. Protection of the health and environment of our citizens now and in the indeterminate future must be the overriding concern of this waste management system. Generators, transporters, and operators of waste management facilities must bear full responsibility for the consequences of damage as well as the operating expenses of the system.

10. The Council of State be authorized to condemn land for the acquisition of suitable waste facility sites, after receiving a request from the Secretary of the Department of Human Resources, who has consulted with the Governor's Waste Management Board.
11. A waste management facility developer be authorized to petition the Governor's Waste Management Board in the event that the facility is prevented by local ordinance(s) or that the local governing body has formally adopted a position of opposing the proposed facility. After reviewing the petition and pertinent information, the Board shall make a recommendation to the Governor after determining whether:
 - (1) the proposed facility is necessary to establish adequate capability for the management of hazardous and low-level radioactive waste generated in North Carolina, and therefore serves the interest of the citizens of the state as a whole;
 - (2) all legally required state and federal permits or approvals have been issued by the appropriate state and federal agencies;
 - (3) the local citizens and elected officials have been given adequate opportunity to participate in the siting process.
 - (4) the existence of the facility would pose an unreasonable health risk or other adverse effect to the community and adequate steps have been taken to anticipate, manage and avoid all foreseeable risks.

After receiving a recommendation from the Board, the Governor should be authorized to reject the recommendation or to approve it and thereby make a final siting decision. This decision by the Governor shall have control over any applicable local ordinances, acts or rules.

12. Local governments be given the authority to establish a privilege license tax based on actual costs and lost revenues associated with a waste management facility, subject to review and approval by the Governor's Waste Management Board.
13. The state be authorized by statute to charge a tax or fee on the waste handled by burial facilities in order to establish a central fund sufficient to pay the cost of post-closure monitoring and care and to pay for any damages that might occur after the operators' 30-year period of post-closure liability has ended.
14. The Governor's Waste Management Board study and make a recommendation concerning whether the state should be compensated for actual costs of monitoring a waste management facility and, if so, what method should be used.
15. The Departments of Human Resources and Natural Resources and Community Development develop additional siting criteria for the development and operation of low-level radioactive waste management facilities.
16. The state of North Carolina pursue the regional compact approach with its neighboring states for the safe management of low-level radioactive waste. Federal legislation which legalizes these compacts has been enacted.
17. A study and evaluation be conducted of the waste management activities within state government related to hazardous waste and low-level radioactive waste. This evaluation should focus particularly on the effectiveness of the involved state agencies and of the Board itself in coordinating and improving performance of waste management functions. In order to ensure objectivity, legislative staff and outside consultants should be involved in this evaluation. High priority should be given to evaluating and reporting on the possible need to reorganize State agencies to

improve further the overall performance of waste management programs.

18. The Governor's Waste Management Board conduct an on-going evaluation of current and proposed rules and regulations and recommend to the appropriate body any changes, additions, or deletions considered necessary to ensure that the public's health and the environment are protected to the maximum extent possible. The Task Force currently recommends that several amendments be introduced during the 1981 General Assembly to strengthen current laws. Those recommendations are discussed in Chapter V, Subchapter D.
19. The state adopt a policy that financial responsibility for damages resulting from hazardous and low-level radioactive wastes be allocated to the greatest extent possible to generators, transporters, and operators of treatment, storage, and disposal facilities. The Task Force recommends that the Governor's Waste Management Board study and make recommendations to the Governor concerning the possibility of furthering this policy by: applying a standard of strict liability to generators, transporters, and facility operators; establishing a fund paid for by waste generators to compensate for personal, property, and environmental damages caused by waste; and increasing liability insurance for facility operators above the amount presently required under RCRA regulations.

CHAPTER I

INTRODUCTION

The history of human life on this planet may be viewed as a struggle between man and his environment in an effort to produce food, provide shelter, and to be protected from infectious diseases. After learning how to provide shelter against the elements of nature, man had to create a surrounding region that was sanitary and safe. For example, the Greeks, Romans and their contemporaries developed intricate systems for fresh water supplies and for disposing of human and animal wastes.

Problems of communicable disease, however, continued to constitute a threat to every generation until the present century. The spread of communicable disease and the resultant increase in mortality rates reached a peak when the industrial revolution brought masses of people to the city at the same time that sanitation of the environment was ignored both in the workplace and at home. In 1832, Edwin Chadwick conducted a survey of the laboring poor in England and concluded that an unsanitary environment was related to disease and high mortality. A few years later it was shown that a cholera epidemic in London could be traced to contaminated water. In the United States around the same time, viz. 1850, a sanitary survey was conducted by Lemuel Shattuck which confirmed the theory that poor sanitation was indeed a contributing factor in the spread of infectious disease. He recommended a plan of corrective action to which he anticipated objection because "We are businesslike, money-making, and money-loving people."

This brief sketch of the early public health movement is cited here to point out that good sanitation has always been synonymous with prevention of disease. These developments happened even before the germ theory was put forward in the latter half of the nineteenth century as the underlying cause of infectious disease. This history

demonstrates that not only can prevention of an unsanitary environment lower the incidence of disease before the causes are known, but also that the effort to maintain a safe environment must take precedence over all other concerns.

Although the underlying causes of infectious diseases were later traced to microorganisms and parasites, it is important to recognize that prevention was eventually the means of reducing these diseases to the point of elimination. Effective means of treatment, such as the antibiotics, were developed later to fill the gap when prevention failed or was not applied.

Prevention also must be brought to bear to solve the brunt of the problem of toxic substances and hazardous wastes. Where prevention is not applied, we must develop methods of treatment that are safe, effective, and economically feasible.

Hazardous wastes probably started to accumulate with the onset of the industrial revolution. Most of these waste products were relatively small and were almost always biodegradable. That is, with time, the waste product was attacked by elements of nature and lower forms of life such that the result was a harmless end product. In fact, the soil in which it was buried was sometimes enhanced.

Starting with World War II, industrial waste became more common as manufacturing and chemical by-products grew in volume and complexity. When non-biodegradable detergents, pesticides, heavy metals, trihalomethanes and other toxic substances first appeared in some of the nation's water supplies and food chain, concern was expressed as to the future of society and what kind of environmental nightmare would be the legacy to our children.

North Carolina was fortunate, in one sense, in lagging behind the northeast and midwest in industrial development. Large chemical dumps, such as those characterized by Love Canal, did not accumulate here twenty and thirty years ago. Hazardous waste products were slower in reaching this state.

Today, however, North Carolina has more than caught up with the nation in the generation of industrial by-products and chemicals that are dangerous to handle and which must be properly disposed. The textile, furniture, printing, paper, chemical, and agricultural industries are all contributing to this accumulation of waste. The Environmental Protection Agency (EPA) ranks North Carolina as eleventh in the nation in generating these hazardous waste products. Time is fast running out for the state to manage this problem.

Recognition of the dangers inherent in radioactivity is yet another problem. The hazards of cancer, birth defects, eye cataracts and other health impairments as a result of relatively high radiation doses were more clearly specified starting in the 1950s. As nuclear plants for generating electricity started to be developed, it was apparent that small amounts of radioactivity were present in disposable gloves, workclothes, and materials and tools used in the generating process. This low level radioactive waste was also present in equipment and animal carcasses used in scientific and medical research as well as in some of the disposable materials used in medical diagnosis and treatment.

North Carolina is now ranked as the fourth largest in the nation in the volume of low level radioactive waste generated. Moreover, some of the waste remains radioactive for a long period of time.

Until recently, there has been practically no coordinated effort among the states to solve these waste problems. A few took the initiative by implementing special legislative restrictions for the handling of certain waste materials and even fewer provided adequate sites for disposal by burial. The federal Resource Conservation and Recovery Act (RCRA) of 1976 recognized that the problem was growing out of control and that positive action was required both at the state and federal levels. As of November 19, 1980, RCRA requires a "manifest," or tracking system, which records the amount and kind of waste generated and traces the material to be certain that it is properly disposed. EPA is charged with adopting rules and

regulations for waste management, and enforcing them where any state is not certified as having the proper system to do so itself. North Carolina is one of the first states to receive interim authority from EPA to implement its own regulatory program under the RCRA.

This report is intended to recommend a waste management system which will supplement North Carolina's ability to protect the environment and comply not only with the rules and regulations but also with the spirit of the federal and state laws. The system is intended to manage the waste problem but it should be borne in mind that the long-range solution must be prevention. For that reason, the members of the Task Force wish to stress that the chapters on research and technical assistance are not luxuries but vital to the state's economic survival in the future.

Moreover, an adequate method for monitoring the effectiveness of this State's efforts to manage waste must be established to be doubly certain that harmful substances are not entering the food chain through water, land, or animals and that the ambient air is free of contaminants from the handling, treatment, and disposal of waste. All of these efforts should be part of an on-going evaluation of the waste management system in order to improve upon it as we learn from experience and research.

CHAPTER II

STATEMENT OF GOALS OF THE GOVERNOR'S TASK FORCE ON WASTE MANAGEMENT

The planning effort of the Task Force was scheduled to culminate in this final report and recommended legislation for consideration during the 1981 session of the General Assembly. The goals of this report are as follows:

- (1) Examine and document the need for North Carolina to develop the capacity to manage hazardous and low-level radioactive waste.
- (2) Examine alternative comprehensive waste management strategies and recommend a strategy that, (a) emphasizes resource conservation and recovery, (b) minimizes the volume which must be buried and (c) ensures the availability of cost-effective waste treatment sites and facilities in North Carolina based upon criteria that provide maximum protection of the public health and safety, and the environment.
- (3) Evaluate the relative capabilities of the public and private sectors to respond to the needs of the comprehensive waste management system, and recommend the appropriate roles for each.
- (4) Review current laws and regulations governing hazardous and low-level radioactive wastes and recommend any changes in these laws and regulations that are necessary to ensure that the health and safety of the public and the workers in the industry are protected, and that the environment is adequately safeguarded.
- (5) Make management recommendations for the ongoing planning, implementation and monitoring of the State's comprehensive waste management system.

- (6) Propose to the 1981 General Assembly legislation necessary to enable North Carolina to begin implementing a comprehensive waste management system.

CHAPTER III

THE MANAGEMENT PROBLEM

The United States government has been generating high-level and low-level radioactive wastes in defense and research programs since World War II. Since the 1950s, low-level radioactive wastes also have been produced by nuclear power plants, medical and research facilities and industrial activities. During the same period, hazardous wastes have increased at an accelerated rate with the development of thousands of new chemicals and the high technology industries that now characterize American society. Before discussing the management problem that these wastes have created, it is necessary to have an understanding of what these wastes are and where they originate.

A. Definition of Wastes

Low-Level Radioactive Wastes - The Nuclear Regulatory Commission, the federal government agency which regulates the use of commercial radioactive material, defines low-level radioactive wastes as any commercial radioactive waste other than the products from reprocessing used nuclear power plant fuel rods, the by-products of the mining and milling of uranium ore, or certain long-lived radioactive materials which require extremely long periods of isolation from the environment.

As their name indicates, low-level radioactive wastes generally contain very low levels of radioactivity. They usually consist of everyday items which have become slightly radioactive through exposure to a radioactive element. They may be paper, plastic, glassware, disposable syringes, clothing or gloves from medical or research laboratories, or filters, filter sludges, mechanical equipment, piping and liquid wastes from nuclear power plants or industrial operations. Though they present a very small hazard when compared with high-level wastes, low-level radioactive wastes must

still be handled carefully and disposed according to strict regulations.

Hazardous Waste - The Resource Conservation and Recovery Act of 1976, the federal law under which hazardous substances are regulated, defines a hazardous waste as "a solid waste, or combination of solid wastes, which because of its quantity, concentration or physical, chemical or infectious characteristics may:

--cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness.

--pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed."

Although the legal definition refers to solid wastes, hazardous wastes also include liquids, sludges and contained gases. Hazardous wastes possess at least one of four characteristics: ignitability, corrosivity, reactivity, or toxicity.

- a. Ignitable wastes catch fire easily and as a result normally are segregated from other waste materials. Examples include discarded organic solvents such as toluene and benzene, oils, plasticizers, some pesticides, and paint and varnish removers.
- b. Corrosive wastes are substances that eat away materials and living tissue by chemical action. Examples include alkaline cleaners, acid liquids used in etching, and wastes from battery production.
- c. Reactive wastes may react spontaneously and vigorously with air or water, be unstable to shock or heat, generate toxic gases, or explode. Examples include obsolete munitions and manufacturing wastes from the explosives and chemical industries.

- d. Toxic wastes are any substances (solid, liquid, or gas) that are poisonous to living beings. Examples include some pesticides, arsenic, cadmium, and their salts, and other heavy metals.

B. Current and Projected Waste Generation In North Carolina

Low-Level Radioactive Wastes - About 202,000 cubic feet of low-level wastes was generated in North Carolina in 1979. Projections indicate that this level will increase by a rate of 10 to 15 percent a year.

An estimated 55 percent of this waste was generated by nuclear power plants. Another 33 percent was generated as a by-product of nuclear fuel fabrication. Institutions, including hospitals, research centers, and universities, accounted for about 12 percent of the volume. (see Appendix I for statewide distribution)

Nuclear power, while generating 55 percent of the volume of low-level radioactive waste in the state, was responsible for more than 95 percent of the total level of radioactivity. These waste materials consist of filters used for removing radioactivity from contaminated liquids, solidified radioactive sludge from evaporation of liquids, compacted wastes such as paper and rags, and bulk waste from plant maintenance and repairs on radioactive equipment and systems.

Nuclear fuel fabrication represented 33 percent of the volume of low-level radioactive wastes generated in 1979. This was less than one percent of the total level of radioactivity. These wastes consist of combustible materials such as paper, towels, gloves, protective clothing and oil; and non-combustible wastes such as containers, machine tools, piping, laboratory glassware and calcium fluoride.

Medical, institutional and research facilities in North Carolina generated about 12 percent of the volume of the low-level radioactive wastes. This was about 4.5 percent of the total level of radioactivity. These wastes include laboratory animal carcasses,

slightly contaminated glassware, residues from the preparation of radioactive compounds, radiopharmaceuticals (radioactive drugs used in nuclear medicine departments for diagnostic and therapeutic programs) and the materials used in their preparation and administration to patients.

Hazardous wastes - Based on a 1976 survey of hazardous and difficult-to-handle wastes, the Solid and Hazardous Waste Branch of the North Carolina Department of Human Resources calculated that approximately 120 million gallons of hazardous substances are produced every 12 months in North Carolina. (see Appendix II for statewide distribution)

Seven major types of industries were included in the survey, and statistical projections were made after on-site visits to 825 manufacturing facilities across the state. These facilities include textile mills, printing and publishing companies, chemical and allied products manufacturers, primary metal industries, fabricated metal producers, electrical and machinery industries, and industries using other types of machinery.

The survey results show the top ten counties in the generation of hazardous waste are: Mecklenburg County (10 million gallons), Guilford County (7.5 million gallons), Gaston (4.4 million gallons), Wake (2.4 million gallons), Rowan (2.2 million gallons), Brunswick (2.1 million gallons), Cumberland (2 million gallons), Forsyth (1.6 million gallons), Wilson (1.5 million gallons), and Columbus (1.3 million gallons).

Under RCRA, industries and businesses that produce more than 1,000 kilograms (about 2,200 pounds) of hazardous waste material each month, or that haul or store hazardous wastes, were required to register with the EPA on or before August, 1980. The 10 counties with the greatest number of industries which registered with EPA as a large generator of hazardous substances are as follows: Mecklenburg, 159 generators; Guilford, 125; Wake, 58; Forsyth, 54;

Cumberland, 51; Catawba, 51; Davidson, 44; Durham, 42; New Hanover, 41; and Robeson, 38. Eight counties had no firms listed as major generators, transporters, or storers of hazardous wastes. (See Appendix III for number of generators per county).

More than 6,000 other industries and businesses in North Carolina also generate hazardous wastes, but in amounts that are under the 2,200 pound limit. They are not required at this time to participate in the manifest system, but legally are required to manage their wastes according to RCRA regulations.

More accurate data on waste generation in North Carolina will be available in the spring of 1981 after the manifest system set up under RCRA becomes fully operational. This cradle to the grave tracking system, which took effect on November 19, 1980, requires annual reports from industries on types and volumes of hazardous waste they generate.

C. The Economic Impact

The jobs and wages associated with generators of hazardous and low-level radioactive waste have a tremendous impact on the North Carolina economy. Even a partial disruption of the operation of waste generating industries owing to the lack of waste management facilities would have a serious effect on the state's employment picture.

A total of 1,442 companies in North Carolina registered with EPA in August, 1980, as generators of more than over 2,200 pounds of hazardous waste each month. Of these, 872 were registered with the North Carolina Employment Security Commission. The Commission's records show that these firms employ 361,926 people and pay more than five billion dollars in annual wages. These data do not represent the total employment and wages associated with companies which generate waste. (See appendix IV, V and VI for accompanying charts)

The nuclear industry in North Carolina employs more than 5,500 people and pays wage benefits annually of more than \$120 million. Figures for medical, research and institutional facilities are not available at this time, but the contributions of these activities to North Carolina's economy are considerable.

D. Current Waste Management Options for North Carolina Generators

Traditionally, North Carolina has depended on facilities in other states to treat and dispose of its hazardous and low-level radioactive wastes. The majority of North Carolina's hazardous wastes are transported to Pinewood, South Carolina, and to Alabama for treatment and disposal. Most of the low-level radioactive waste generated by North Carolina's nuclear power plant and other commercial activities are sent to Barnwell, South Carolina, where one of only three low-level disposal sites in the country is located. Medical and institutional low-level wastes are shipped to the two remaining disposal sites in Nevada and Washington state.

States that have handled wastes for other states in the past have indicated that they are no longer willing to shoulder the waste disposal burden for the entire country. If North Carolina is to continue to grow and prosper, the hazardous and low-level radioactive wastes generated within its own borders must be reduced by prevention, recycling, and recovery or destroyed by methods known to be safe. Land burial should be avoided if at all possible and the state system of management that is developed should be based on this principle.

In North Carolina at this time, small amounts of hazardous wastes are being treated at the plant sites where they are generated, and at several commercial incinerators that burn certain types of these wastes. None of these facilities have received final permit authorization under federal regulations which are expected to go into effect later this year.

An interim permit was granted to SCA Services of Boston, Mass., in September, 1980 for construction of the state's first large commercial treatment and recycling facility for hazardous wastes. The development of this facility has been held up pending the outcome of an administrative hearing, and possible court action.

E. What is Needed?

There is a need for additional treatment and volume reduction facilities within North Carolina to reduce the volume of hazardous and low-level radioactive waste which requires landfilling and reclaim those substances which can be reused. The Task Force is unable to determine at this time exactly how many of these facilities are needed in order to reduce to an absolute minimum the volume of waste that must be disposed of permanently. Once the manifest system is in full operation, information will be available to enable the state to determine more accurately the type and number of facilities needed to achieve this goal.

At least one hazardous waste landfill is probably needed now in North Carolina for ultimate disposal of wastes that cannot be treated or further reduced in volume. Presently, it is not determined if a landfill is needed for low-level radioactive waste. A regional compact appears to be more feasible economically, and North Carolina is discussing this possibility with its neighboring states. Under this approach, each state would determine what role it would play in developing the necessary facilities for a comprehensive waste management system. The Barnwell facility in South Carolina could serve as a regional burial facility. Other facilities which are needed for the creation of a comprehensive regional system include an additional back-up burial facility, an incinerator for liquid waste from medical and research facilities, and volume reduction and storage facilities. North Carolina must determine which type of facility it is willing to develop if it wants to be a member of this compact system. The state should also continue to lay the necessary foundation to develop an in-state capability to manage properly its

low-level radioactive waste in case the regional approach is not successful.

CHAPTER IV

TECHNOLOGY AND STRATEGIES FOR MANAGING WASTES

A variety of technologies and strategies exist today for the handling, treatment and disposal of hazardous and low-level radioactive wastes. While recognizing that these technologies will improve with continued research and increased knowledge, they offer a far better solution to the existing waste management problem than no management at all.

The recommended approach to solving North Carolina's waste problem is to develop a variety of safe and economical alternatives. This comprehensive waste management system must be designed to facilitate prevention, resource conservation and recovery and minimize the volume to be buried. The following is a general discussion of technologies available today. More detailed information is available in two recently published reports - The Technical Advisory Committee Report on Hazardous Waste in North Carolina and the Technical Advisory Committee Report on Low-Level Radioactive Waste in North Carolina. They are available upon request from the Department of Human Resources.

A. Resource Conservation and Recovery

The most desirable and economical way to manage and control hazardous wastes is in the plant where they are generated. It is possible to reduce wastes without slowing progress, or losing good jobs and economic security. This is being proved by industry itself. In an article entitled, "Thinking Ahead: Making Pollution Prevention Pay," in the November-December 1980 issue of the Harvard Business Review, (pp. 2-22), Michael Royston presents very convincing evidence that "new no-waste technologies in use around the world can help companies meet their goals of profit, growth, and survival." The article describes how many firms see the production of hazardous, or any other waste, as uneconomical and eliminate or reduce them by redesigning their manufacturing process.

Conservation and recovery methods employed at plant sites are referred to in the Technical Advisory Committee Report on Hazardous Wastes as the "in-plant option," and utilize two general areas of technology:

1. Process modifications that eliminate or greatly reduce specific toxic substances in the waste stream by making them non-hazardous. This usually involves changing the chemistry or the engineering techniques used in the production processes.
2. Processes that either recycle wastes to be used again, or that reduce the volume of hazardous waste (for example, incineration) leaving the plant.

These processes do not always offer a total solution to the problem either because the technology doesn't exist or because current methods are not economical.

B. Recycling, Treatment, and Volume Reduction

Because many companies cannot afford to develop the in-plant capabilities to recycle, treat and reduce their waste volume, the development of off-site facilities to provide these services is needed in North Carolina.

One example of a recycling facility for hazardous waste already in operation in North Carolina is the Oil Recycling Demonstration Plant. This facility converts waste motor oil, a hazardous waste, into a completely reclaimed, high quality lubricating oil. The impurities removed from the oil are concentrated into a very small volume for further disposal. The cost of the facility is approximately \$2 million, and an economic analysis shows a good return on the investment.

Recycling or recovering radioactive elements from low-level radioactive wastes, on the other hand, is normally not economically

feasible. There is one exception to this general rule in North Carolina. Since fuel fabrication wastes contain low enriched uranium, the General Electric Fuel Fabrication plant in Wilmington recovers uranium and useful by-products from incinerated low-level radioactive wastes.

The plant is also storing about one million cubic feet of calcium fluoride sludge (which results from the processing of fuel rods) because the company believes that a process for recovering uranium from these materials will be found in the not too distant future.

Types of processes used to treat and reduce hazardous waste materials include thermal, chemical, biochemical and physical.

1. Thermal Treatment - The most common types of thermal treatment are pyrolysis and incineration. Pyrolysis uses high temperatures (thousands of degrees) to convert hazardous waste compounds into non-hazardous compounds and ash.

Incineration uses high or low temperatures to burn hazardous wastes, converting them into water, carbon dioxide and ash. In either case, the resulting ash may be hazardous or non-hazardous. If it is hazardous, it must be disposed of in an approved landfill.

2. Chemical Treatment - Some hazardous wastes may be made less dangerous by chemical reactions that transform them into a less hazardous form. This can be achieved through fixation, which joins the hazardous compound with a less hazardous material; and precipitation, which separates the liquid and solid constituents of a hazardous material.
3. Physical Treatment - Physical treatment separates hazardous constituents from the non-hazardous ones which reduces the volume to be treated or disposed.

4. Biological Treatment - In biological treatment, certain microorganisms attack the molecular structure of hazardous substances breaking down these substances into less hazardous compounds. Recent innovations in biological engineering provide methods of disposing of even the most toxic of wastes.

Much of the volume of low-level radioactive wastes generated in North Carolina can be reduced by compaction or incineration. Compaction is probably the simplest method available for volume reduction. In the compaction process, trash is hydraulically rammed into a shipping drum under pressure. A vacuum removes air expelled from the drum to a ventilation system where it is filtered to remove radioactivity. The process is repeated until the drum is filled. It reduces volume by a factor of three.

The incineration process reduces low-level radioactive waste volume by 50 to 90 percent and converts the waste into ash which is chemically inert, sterile, nonflammable and has low water solubility. This works well for dry trash and combustible liquids. It is especially suited to institutional low-level radioactive waste.

C. Waste Information Exchange

Waste exchange is another approach to hazardous waste management that is designed to promote recycling and reuse of industrial wastes. The exchange concept has been successful in Europe and is being tried in at least twelve locations in the United States. The Piedmont Waste Exchange in Charlotte is operated by the University of North Carolina at Charlotte through the Institute for Urban Studies. It publishes a periodical called the Waste Watcher on a quarterly basis.

A waste exchange organization either can acquire and resell waste materials, or it can simply serve as a clearinghouse to exchange information that will help industries locate waste materials which they can use in their industrial processes.

An exchange organization that actually handles wastes must make a substantial investment in land and equipment, as well as employ highly trained personnel. These types of organizations have been only moderately successful and it will be important to study the impact of the Piedmont Waste Exchange, started in 1978, to learn its value as a waste management tool for North Carolina. If the initial phase is a clearinghouse which transfers information only, operating costs are minimal.

The clearinghouse also can become an effective source of technical information on recycling, process modification, and changes in regulations, particularly useful to medium-sized and small companies.

The waste exchange clearinghouse approach is not very useful when dealing with low-level radioactive wastes because it is normally not feasible to recycle or recover the radioactive constituents from materials.

D. Land Treatment

In land treatment, selected types of hazardous wastes can be applied to the plant-soil system (a land area covered by vegetation) at specific rates and times. Chemical and biological reactions break down a portion of the waste, absorption and fixation affect other portions, and controlled migration is allowed for certain inorganic fractions. Application rates are kept low enough so that the land remains agriculturally usable.

The technology for land treatment is still being developed. It is not clear what part it will play in the overall hazardous waste management plan for the state of North Carolina.

The concept of land treatment is not applicable to the management of low-level radioactive wastes.

E. Above Ground Storage

Above ground storage is neither a permanent solution nor one which is applicable to all classes of waste products. As the word storage implies, the method might be useful for the temporary placement of certain substances above ground for which there is a reasonable prospect that research will develop new technology to recover or recycle the useful substances (e.g. heavy metals), or new procedures to detoxify or neutralize the waste completely. Above ground storage at off-site facilities would be inappropriate for low-level radioactive wastes with a half-life of approximately one year or longer and for corrosive and ignitable products. Storage should never be considered for materials that can be safely treated as mentioned in Section B.

Storage must carry enormous security requirements against fire, lightning or other unusual weather conditions, accidents, leakage, and extremes of temperature which may increase the reactivity of the waste. The primary advantage of temporary storage is to avoid the use of landfills for materials that might be detoxified or recycled within a few years as technology improves. It will also promote the need for the state and nation to embark upon research that will lead to methods of recovery and detoxification.

The Task Force recommends that the proposed Governor's Waste Management Board study this method and attempt to classify those waste products which are amenable to such storage. It should also consider taking steps to assure that this type of facility is available in North Carolina if it proves to be a better management option for certain types of waste.

F. Land Disposal

A final, but currently necessary component of a comprehensive waste management system is approved landfills for ultimate disposal of wastes that cannot be treated or further reduced in volume.

Every effort should be made to recycle or reduce the volume of all wastes so that the use of landfills will be minimized. The disposal of wastes in a properly engineered, well monitored and secure landfill can be handled without immediately endangering the environment or health of the citizens. However, present knowledge is inadequate to determine how long a landfill facility will remain secure. Therefore, any waste disposed of in a burial facility should be clearly identified and labelled, and its location marked to facilitate retrieval in case detoxification becomes feasible or leakage is discovered.

Landfill containment of hazardous wastes is primarily intended for waste solids, which are normally delivered to the landfill in containers (drums, barrels) and placed in compartmentalized subsections of the landfill. Absorbent is placed around, above and below each container, and the landfill is lined with clay or artificial liners to prevent waste material from moving through the soil to the groundwater.

Closure of the individual compartments, or cells, in a landfill requires the application of impermeable liners and vegetative cover. After closure of all cells, the site is perpetually monitored for environmental impact.

The standards imposed by the Resource Conservation and Recovery Act for the design, construction, and operation of a permitted landfill, and the costs of locating, designing, permitting and operating an approved facility obviously are very high. It is not economically feasible to operate more than a few in North Carolina.

Historically, low-level radioactive wastes in the United States have been disposed of in shallow burial landfills. This disposal method involves excavating the earth to form trenches, partially filling the trenches with pretreated, packaged wastes, and back filling the trenches with earth. In effect, the soil is the package for the waste, and when properly engineered, provides highly effective

containment. Whether this containment will still be effective many years later is unanswerable at this time; however, ongoing monitoring of the site will help ensure that the public's health and environment are protected.

CHAPTER V

RECOMMENDED MANAGEMENT APPROACH

A. Elements of a Comprehensive Waste Management System

As Chapter IV of this report indicates, there are many approaches that can be taken to alleviate the waste problem, ranging from reducing the amount of waste that is generated to ensuring that there are adequate facilities available for final treatment and disposal. All of these approaches are essential to a comprehensive management system and their implementation will require a cooperative effort among the private and public sectors of the state.

Before discussing the recommended strategies for North Carolina to improve its waste management capability, it is important to understand the functions that any successful waste management system must include. The first goal of a waste management system is to identify the wastes to be managed. The second is to assure they are transported, treated and disposed in a safe and proper manner.

The Task Force has found it helpful to organize these essential functions into six broad categories to be discussed briefly here and expanded on later in the report. They are:

1. REGULATION AND ENFORCEMENT - Establishing rules defining wastes that are subject to regulations; setting standards for their safe handling, transport, treatment and disposal; policing the regulations and imposing legal remedies for violations.
2. FACILITATING TECHNOLOGICAL SOLUTIONS - Encouraging research and development of technology, providing an information waste exchange, promoting recovery and recycling of wastes and providing tax incentives and other inducement to utilize new technology.

3. FACILITY DEVELOPMENT AND OPERATION - Selecting and acquiring sites for waste facilities, building and operating the facilities, monitoring the surrounding area and, in the case of burial sites, closing the sites and monitoring after closure.
4. EMERGENCY RESPONSE AND CLEANUP - Providing immediate responses to emergency spills and accidents, and cleaning up any discharges of waste and abandoned storage sites.
5. PUBLIC INVOLVEMENT - Encouraging public involvement in the development of a waste management system for the state, particularly in the decisions concerning the siting of new facilities.
6. ORGANIZATION - Creating an organizational arrangement to provide evaluation, coordination and consistent policy direction among governmental agencies which play a role in carrying out waste management functions.

B. Existing Management Framework

North Carolina's current management framework for hazardous and low-level radioactive waste consists primarily of extensive regulatory programs for both types of waste. There is also an established procedure for responding to emergencies related to waste spills or accidents, and for cleaning up discharges into the environment.

The existing legal framework for regulating hazardous waste is the RCRA implemented in North Carolina under the Solid Waste Management Act. The existing regulatory framework for low-level radioactive waste is established by the regulations of the federal Nuclear Regulatory Commission (NRC) and implemented in North Carolina under the North Carolina Radiation Protection Act. Both federal programs set minimum standards which the states must meet in order to assume primary authority for their implementation. North Carolina meets the standards for both programs and has the primary responsibility for regulating these wastes.

The Department of Human Resources (DHR) has the primary statutory authority for regulating hazardous and low-level radioactive waste. The Solid and Hazardous Waste Branch in the Division of Health Services administers the hazardous waste program. The Radiation Protection Section in the Division of Facility Services administers the low-level radioactive waste program. The Health Services Commission and the Radiation Protection Commission are the rulemaking bodies for development of program standards.

The hazardous waste and low-level radioactive waste regulatory programs use a very similar approach. Standards for handling these wastes are established for generators, transporters and facility operators. Generators must keep records of quantities and types of waste and the disposition of those wastes. Transporters must keep records of all waste transported and deliver those wastes only to approved facilities. Facility operators must meet strict environmental, health and safety standards. They must go through a strict permitting process which includes a showing of complete financial responsibility. The hazardous waste law provides for administrative penalties for violations of its provisions or regulations, while the Radiation Protection Act provides for criminal penalties. The following is a more detailed description of these regulatory programs.

Hazardous Waste - Under North Carolina's hazardous waste regulatory program, regulations have been established identifying and listing hazardous wastes. Also, standards have been established applicable to generators of hazardous waste that require:

- (1) recordkeeping practices that accurately identify the composition and quantities of hazardous wastes generated and the disposition of such wastes;
- (2) labeling practices to identify the waste in appropriate containers used for the storage, transport, or disposal of hazardous waste;

- (3) use of a manifest system to assure that all hazardous waste generated is disposed at permitted facilities;

In addition, regulations have been established that require transporters of hazardous wastes to:

- (1) keep records of manifests concerning types and amounts of hazardous waste transported;
- (2) transport only hazardous waste that is properly containerized and labeled;
- (3) clean up waste if spilled during transportation;
- (4) transport hazardous wastes only to approved treatment, storage, or disposal facilities designated by the shipper on the manifest form.

Regulations establishing performance standards applicable to owners and operators of facilities for the treatment, storage and disposal of hazardous wastes are being finalized. Such standards include requirements concerning recordkeeping, monitoring, training of personnel, and financial responsibility. Therefore the construction of new facilities will not be permitted until the proposed EPA standards are finalized. Existing facilities that meet interim standards have been allowed to continue until finalization of the standards, at which time they will be required to comply or discontinue operation.

Low-level radioactive waste - In 1964, North Carolina was designated as an "Agreement State" by the Atomic Energy Commission (now the Nuclear Regulatory Commission) with specific regulatory authority to control and regulate low-level radioactive materials. Under this agreement, North Carolina must have a program compatible with NRC regulations designed to protect the public health and safety. The regulatory program is very detailed and stringent; radioactive

materials are closely controlled at all stages of use and disposal. The state is not responsible for regulating high level radioactive waste. That is the responsibility of the federal government.

Before a license authorizing the operation of a low-level radioactive waste disposal or treatment facility can be issued, DHR must be satisfied that the applicant complies with all regulatory standards related to siting and facility performance, personnel, training, procedures, equipment and a safety program. There is need for additional criteria for siting burial facilities. The EPA and the NRC are currently working on the development of such criteria.

After receiving a radioactive material license from DHR and an air emission permit from NRCD, the facility operator is then responsible for the safe and efficient construction and operation of the facility. The DHR is responsible for conducting periodic operating inspections to assure compliance with all requirements. The operator must promptly correct any violations when detected by the regulatory agencies. If the licensee fails to meet all regulatory requirements, DHR may modify, suspend, or revoke the license. The Task Force recommends that present laws be amended to provide also civil penalties for violators.

Facility operators are required to make payments to an extended care fund, and acquire and maintain any bonding or insurance required by state regulations.

Transporters and generators of low-level radioactive waste are required to comply strictly with all packaging, labeling, monitoring, and recordkeeping requirements of the U.S. Department of Transportation and the standards established by the North Carolina Radiation Protection Commission. This is important to ensure minimal risks when low-level radioactive wastes are transported to and handled at treatment and disposal facilities.

Other agencies with existing regulatory responsibility - The Transportation Division of the Utilities Commission in the Department of Commerce, enforces transportation regulations in regard to for-hire carriers of both types of waste. Regulatory authority over pesticides, many of which are hazardous substances, lies with the Department of Agriculture. The Department of Natural Resources and Community Development administers the Oil Pollution and Hazardous Substances Control Act of 1978 which prohibits discharges of oil and other hazardous substances. Natural Resources and Community Development is also the permitting authority for several pollution control permits that may be necessary for building and operating a hazardous waste facility.

Lead responsibility for responding to hazardous and radioactive waste emergencies rests with the Department of Crime Control and Public Safety, which has the responsibility for planning, organizing and directing the initial response to hazardous and low-level radioactive wastes emergencies. The Secretary of Crime Control and Public Safety is given the statutory authority to utilize and allocate all available State resources to cope with such emergencies. The Department of Natural Resources and Community Development is authorized by statute to clean up hazardous waste discharges which are considered emergencies.

C. Organizational Arrangements--The Governor's Waste Management Board

In order to have an effective waste management system, it is necessary to establish an organizational structure that will ensure that all of the functions of the system are being performed satisfactorily. Inasmuch as many of the important management functions are located in various state departments, this is an especially important issue for North Carolina.

The Task Force considered two general approaches to establishing a new organizational structure. One is to place all waste management functions in a single agency, either newly formed for this purpose or

consolidated under an existing agency. The advantage of this approach is that all functions would be unified under a single administrative arrangement, thereby facilitating coordination and consistency in all aspects of waste management. The disadvantage is that it would require a major reorganization within State government, and also create a new agency that would duplicate some of the expertise and capabilities existing in others.

The second approach is to create a Board to oversee the management activities of the agencies involved in waste management. The Board would promote interagency coordination, monitor the effectiveness of the combined efforts of the various agencies, and make recommendations for improving the overall management effort. This approach provides a mechanism for comprehensive coordination and evaluation while leaving the management functions in the various agencies that presently have the personnel and expertise to handle them.

The Task Force recommends that a Governor's Waste Management Board be created. It should be emphasized that in recommending this approach, the Task Force does not reject the possible need for later reorganization to consolidate waste management functions. Indeed, the Task Force recommends that the Board be directed to study the necessity for such reorganization and to report its findings to the Governor and General Assembly at an appropriate time in the future.

The following is a more detailed description of the recommended purpose, organization, operating procedures and functions of the Governor's Waste Management Board. (Also explained in Appendix VII)

1. The Purpose of the Board

The purpose of the Governor's Waste Management Board is to ensure the development and implementation of an effective, unified program of waste management in North Carolina by building upon the recommendations of this report.

2. The Organization of the Board

- a. Membership. Total membership of the Waste Management Board should be 20 individuals. The Secretary or Commissioner of the following departments (or his or her designee) should be appointed.

Department of Human Resources

Department of Natural Resources and Community
Development

Department of Commerce

Department of Administration

Department of Agriculture

Department of Crime Control and Public Safety

Department of Labor

Department of Transportation

In addition to the above members, the Executive Director of the North Carolina Board of Science and Technology should be appointed, plus eleven representatives from the legislature, counties, municipalities, private industry, higher education and public interest groups. No more than two representatives should be appointed from industries that generate hazardous or low-level radioactive waste. Members from outside state government should be appointed by the Governor and should be chosen to ensure that all geographical areas of the state are represented. Nominations for these positions may be made by individuals, associations, and other groups.*

*In making appointments to the Waste Management Board, consideration should be given to the fact that members of the Task Force have devoted six months to learning about the technology of Waste Management as well as the complex issues of siting, legal considerations, and other matters that will continue to need attention. For this reason, as well as to provide continuity, of the Membership of this new Board might have a running start by using some of the members of the Task Force.

Because of the potentially controversial nature of the Board's activities serious consideration should be given to having the members bonded against personal liability, at the expense of the state.

- b. Staff. The staff should consist of an Executive Director, a Secretary to the Executive Director, a public participation specialist, and such additional people as may be essential to ensure efficient and effective organization and operation of the Board. The staff should be located in the Department of Human Resources.
- c. Chairperson. The Chairperson of the Board should be appointed by the Governor. The Chairperson should not be from industry or the Secretary or Commissioner of a State agency or his or her designee. The Task Force believes that the Board will require a chairperson who can devote a major part of his or her time to the work of the Board. This need for a "working" chairperson should be kept in mind in making the appointment, and an office should be provided in the Department of Human Resources.
- d. Reporting Procedure. The Board will report directly to the Governor.

3. The Operating Procedures of the Board

The Board is not designed to supersede or duplicate the functions of any department or agency. It should work to achieve unity among state departments, local governments, the general public and private sector in seeking the best solutions to the state's waste management problem. It may recommend changes in procedures and responsibilities, subject to final approval by the Governor or, where required, by the General Assembly.

The Task Force recommends that a subcommittee of the Board be created to work with local officials and citizens when a permit application has been filed to develop a waste management facility in the area. This will help to ensure strong communication and involvement between the state and locality in the permitting process.

4. The Functions of the Board

The Board's role would include the following functions:

- a. Assess the volume, distribution, and characteristics of low-level radioactive and hazardous waste generated in North Carolina and promote and facilitate the development of necessary facilities to manage safely these wastes.
- b. Promote and advise on the development of a comprehensive waste management system which maximizes prevention and resource recovery and conservation, and minimizes the amount of waste that must be buried. As an essential part of this function, the Board would have the primary responsibility for promoting the establishment of a waste information exchange.
- c. Promote process modification and encourage research and development to aid in the prevention of waste generation.
- d. Ensure that the necessary technical assistance and continuing education are made available to generators to help them reduce waste volume and make necessary arrangements to manage their waste safely.
- e. Study and evaluate activities within State government related to hazardous waste and low-level radioactive waste management. This should be done annually until January, 1986 and every two years thereafter. The evaluation

should focus particularly on the effectiveness of the involved state agencies and of the Board itself in coordinating and improving performance of waste management functions. In order to ensure objectivity, the appropriate staff in the legislative branch and non-governmental consultants should be involved in this evaluation. As a part of the initial evaluation, a report should be prepared on the possible need to reorganize state agencies to improve overall performance of waste management programs. The report should give consideration to the advantages and disadvantages of consolidating or centralizing administration of programs that are now in separate agencies.

- f. Study and make recommendations concerning how to allocate to generators, transporters and facility operators financial responsibility for damages caused by waste. Matters to be studied are the possibility of applying a standard of strict liability to generators, transporters and facility operators, establishing a fund paid for by waste generators to compensate for personal property and environmental damages caused by waste, and increasing liability insurance requirements for facility operators.
- g. Advise on the state's role in facility development if the private sector fails to respond to this need.
- h. Initiate preemption procedures as a last resort in cases where it appears that a proposed treatment, storage or disposal facility has been prevented by a locality, and make recommendations to the Governor concerning the following findings which are necessary to deciding whether or not to exercise the preemption authority: (1) whether the proposed facility is necessary to establish adequate capability for the management of hazardous and low-level radioactive waste generated in North Carolina, and

therefore serves the interest of the citizens of the state as a whole, (2) whether all legally required state and federal permits or approvals have been issued by the appropriate state and federal agencies, (3) whether local citizens and elected officials have had adequate opportunity to participate in the process, and (4) whether the existence of the facility poses an unreasonable health risk or other adverse effect to the community and adequate steps have been taken to anticipate, manage, and avoid all foreseeable risks.

- i. Advise and assist in discussions with other states concerning regional (interstate) waste management agreements.
- j. Promote public information and education activities concerning waste management.
- k. Review and approve privilege license taxes which localities propose to apply to off-site waste management facilities in their jurisdiction.
- l. Develop means for promoting and implementing any policies and recommendations in this report.
- m. Advise the Secretary of Human Resources on whether it is necessary to request that the Council of State condemn land for the development of a waste management facility.
- n. Review the adequacy of waste management regulations to protect the health and safety of state citizens and recommend to the appropriate body what changes, additions, or deletions should be made.

D. Regulation and Enforcement

North Carolina's regulatory and enforcement programs should ensure that all aspects of handling hazardous and low-level radioactive wastes are carried out in a manner that provides maximum protection of the environment and the public's health and safety. North Carolina is fortunate to have comprehensive laws and established regulatory programs for both hazardous and low-level radioactive wastes. The agencies responsible for administering these regulatory programs worked in cooperation with the Task Force to identify deficiencies in these laws. As a result of this joint effort, the Task Force recommends the following statutory amendments:

1. Hazardous Waste

The following is a summary of proposed amendments to the N.C. Solid Waste Management Act, the statute which establishes the state's hazardous waste regulatory program. These amendments are needed to place North Carolina in a position to receive final EPA approval to implement the RCRA.

- a. The definition of "solid waste" in the Solid Waste Management Act should be changed so that it will include, rather than exclude, the following classes of substances: sludges incidental to and generated by waste water discharges that are point sources subject to permits under the Federal Water Pollution Control Act; oils and other liquid hydrocarbons controlled under Article 21A of Chapter 143 of the North Carolina General Statutes; and mining refuse covered by and regulated under the North Carolina Mining Act.

The change in these exclusions is considered desirable to ensure that the coverage of the North Carolina regulatory program is as broad as the coverage of the RCRA. Although each of these classes of substances is to some extent

regulated by another agency, in all cases the other agency does not have adequate statutory authority to deal with the disposal of any hazardous wastes associated with such substances. Therefore, the present practice is to rely on the Solid and Hazardous Waste Branch to regulate disposal of such wastes, even though the wastes are not actually subject to the hazardous waste regulatory program. The amendments would require by law the procedures that are presently in practice.

- b. The definition of "person" in the Solid Waste Management Act should be amended to include state and federal agencies. The effect of this amendment would be to subject these government agencies to the provisions of the law and the regulations promulgated pursuant to it.
- c. The Health Services Commission should be authorized to establish a list of wastes that are hazardous and subject to regulation under the provisions of the State Solid Waste Disposal Act.
- d. The Health Services Commission should be given clearer authority to promulgate and enforce rules requiring operators of hazardous waste facilities to carry sufficient insurance and to provide funds to cover the costs of facility closure, post-closure monitoring, and any corrective measures that may become necessary.
- e. The Secretary of the Department of Human Resources should be authorized to consider risks to the environment as well as to public health in determining whether an imminent hazard exists concerning solid and/or hazardous waste. Consequently, the Secretary would have authority to order a generator or transporter of a solid or hazardous waste, or the operator of a solid or hazardous waste management facility, to eliminate any conditions that create an imminent hazard to the environment.

- f. The remedies for violations of solid and hazardous waste laws and regulations should be strengthened by (a) increasing from \$5,000 to \$10,000 per day the maximum amount for administrative penalties imposed by the Department of Human Resources, and (b) making violations of the law or regulations a misdemeanor, i.e. a minor criminal offense. (Amendment (b) would have the effect of extending enforcement authority to general law enforcement officers throughout the state, thereby greatly increasing enforcement capability.)

2. Low-Level Radioactive Waste

The following is a summary of proposed amendments to the Radiation Protection Act, the statute which establishes North Carolina's low-level radioactive waste regulatory program.

- a. The Radiation Protection Commission should be given clear authority to establish fees or charges for radioactive waste disposal, long term or perpetual care costs and associated training, inspection, and enforcement costs.
- b. The Radiation Protection Commission should be authorized to impose civil penalties for violations of the Radiation Protection Act and regulations pursuant to it. The procedures and dollar amounts should be the same as those for hazardous wastes.

3. Transportation of Hazardous and Low-Level Radioactive Waste

The appropriate statutory amendments should be made to extend the authority of the Transportation Division of the North Carolina Utilities Commission to cover not-for-hire (private) carriers for purposes of enforcing hazardous and low-level radioactive waste transportation regulations. The Enforcement Section of the Transportation Division plays a major role in

inspecting trucks that transport hazardous and low-level wastes. It is estimated that over 50% of such wastes are transported in North Carolina by private carriers, and that this percentage will likely increase. The State's ability to enforce waste transportation regulations would remain greatly impaired unless the authority of the Transportation Division's inspectors is extended to private carriers.

E. Development and Utilization of Waste Management Technology

1. Research and Development

Statement of need

The Technical Advisory Committee on Hazardous Waste Management estimated that there may be as many as 50,000 chemicals in use today. Not all of them may be hazardous or toxic in nature but the sheer volume of known hazardous wastes generated in North Carolina in 1980, estimated at somewhere between 600,000 and 1,800,000 tons per year, means that the state can not afford to continue to rely upon the technologies of the 1960s and 1970s to handle this growing problem.

Whether the new chemicals introduced each year during the manufacture of goods is 2000 or 5000, it is clear that the drive for more and better technology in our life style is creating a potential for the hazardous waste problem to grow quickly out of control. Economic development and technological progress can not and should not be halted to stop the accumulation of waste, but neither should their growth be incompatible with the protection of the environment. The potential harmful effects to the state's water, air, and food associated with the manufacture, use, transportation, and disposal of wastes must be controlled, first of all, by better methods during the manufacturing process. If prevention is not possible, then those methods for recycling, recovery, incineration, temporary

storage and burial of these wastes should continue to be improved.

In summary, the present volume of hazardous wastes is large and destined to grow even more rapidly in the future unless the preventive efforts discussed in Chapter IV A. are successful. Furthermore, new, complex chemicals will be introduced into this stream of waste, the effects of which scientists do not yet understand. It is imperative, therefore, that waste prevention be stressed rather than waste management.

Research goals

The Technical Advisory Committee on Hazardous Waste Management recommended "That the state encourage continued research and development within this field of hazardous waste management." The Task Force members strongly support this advice and urge its adoption to accomplish the goals outlined below.

- a. It is generally recognized by large industries that it is inefficient to generate waste products during the manufacturing process which have no useful purpose. In fact, the lack of any useful function for these waste products might be viewed as doubly inefficient because they need to be transported and eventually disposed or treated. Therefore, the primary goal in research and development, to be performed mostly by industry, should be the avoidance of wastes by suitable changes in the manufacturing process. The incentive for such research is a reduction in the cost per unit of manufactured product. Additional incentives can be created by authorizing certain tax allowances for companies that eliminate waste generated by the manufacturing process.
- b. If it is not economically possible to avoid the production of these hazardous materials during the manufacturing

process, the next goal for research by industry should be efficient recycling and recovery of any useful products. The justification for industry to conduct such research is continued reduction of the operating costs per unit of good manufactured. An additional incentive can be created by extending tax allowances for those companies that reduce or recycle their wastes, especially those that do so on site.

The Technical Advisory Committee recognized the importance of this kind of research by industry and recommended the issuance of an annual "Governor's Award for Excellence" to a company in this state with outstanding achievement in this regard. The Task Force endorses this suggestion because it will help encourage and recognize this kind of research and development. The Task Force believes, however, that tax incentives are an even stronger inducement for industry to eliminate or reduce waste.

- c. The chemical complexity of most toxic substances and hazardous waste materials is growing faster than the technology to detoxify and/or neutralize them. No state should continue simply to bury these materials ad infinitum because of the loss of this land for raising food or for residential development. These burial sites if not properly designed and monitored could represent a perpetual threat to health.

Research should be encouraged among the state agencies, educational institutions, and research enterprises to study these hazardous materials in order to learn how to inactivate, degrade, or render innocuous as many as possible.

- d. Many toxic and hazardous substances can be burned safely on land-based incinerators or ocean-going ships equipped

with appropriate incineration systems. Research is needed, however, to study which materials can be treated by incineration and to ascertain the safety measures that need to be taken to assure that the release of pollutants from the incinerator stack is harmless to plant, animal, and human life. In fact, the first project might be to study which wastes can be incinerated safely on land and which ones need to be burned far out at sea. Current research by the Environmental Protection Agency has demonstrated the safety of incinerating organochlorine wastes in this manner.

- e. Many of the toxic substances and hazardous wastes may end up as an organic sludge that can be digested in special chambers to produce methane gas. Such efforts would not only reduce the volume of waste but they may actually be energy efficient.
- f. More research and development needs to be encouraged among engineering geologists and hydrologists to study and improve the criteria for siting of burial disposal facilities.
- g. More research and development needs to be promoted among agricultural experts, particularly those in soil science, on monitoring burial disposal sites as well as learning what kinds of crops can be grown safely on land treated with wastes and sludge. With the present state of knowledge, safety might require that the use of such land be limited to growing ornamental crops, or trees for lumber and paper.
- h. Additional research is needed in monitoring all kinds of waste treatment facilities to ascertain the healthfulness of persons working or living adjacent to them. A delay of twenty years in observing carcinogenic or mutagenic

effects is not unusual at the present time. This means that research in environmental epidemiology needs further support and encouragement to be able to detect potentially harmful effects as early as possible.

Promotion of research and development

As indicated in the previous section, goals a and b should be encouraged among the private sector by appropriate dissemination of information, tax incentives, and the issuance of a "Governor's Award for Excellence" for outstanding achievement.

Goals c through h might be encouraged in state agencies, or by grants and contracts to educational institutions and research organizations in the state. The Task Force considered various options for this purpose such as the appropriation of funds to the Governor's Waste Management Board, or to the Board of Science and Technology, or to specific components in state government concerned with the handling of wastes. Under the constraint of time, it was not feasible to reach consensus and the Task Force strongly advises the new Board and the General Assembly to study this problem in order to decide upon appropriate actions to promote such research in the years ahead.

2. Technical Assistance and Continuing Education

Statement of need

As indicated in the foregoing section on Research and Development, the current volume of toxic substances and hazardous materials requiring special handling is large, growing every day, and becoming still more complex in its chemical composition. The only solution to handling this problem is to reduce it in size and complexity by means of targeted research efforts.

This means that the current technology for the management of waste will become obsolete in a few years. The forecast of new knowledge in the future, plus the fact that many generators of waste are not familiar with even the current technology, points to the need for this state to promote continuing education courses and workshops to inform persons how to cope with the problem of hazardous wastes. Where the particular problem may be unique or special, the state should also establish and support a plan for providing technical assistance and consultation to waste generators, transporters, and operators of treatment facilities.

Goals

- a. To promote the development of a mechanism for conducting continuing education short courses, workshops, and demonstrations on the current technology to handle various classes of toxic substances and hazardous materials.
- b. To promote the development of an arrangement whereby the state can offer technical assistance and consultation to individuals and companies with special waste management problems.

Implementation of goals

Owing to the constraint of time, the Task Force was unable to reach agreement on how the technical assistance and continuing education should be conducted and financed. It is hoped that the Board will consider these issues and take appropriate actions to implement them in accord with current practices in the state.

In this connection, the Task Force wishes to point out that the educational institutions in the state are a valuable resource with experts in many disciplines who can be used to supplement

the personnel in state government. The first institution which comes to mind is the Industrial Extension Service at North Carolina State University. However, it would be short sighted to fail to take advantage of the scores of other university faculty and organizations that have special knowledge of one or more of the waste materials and are willing to respond to requests for assistance. A project sponsored by the Environmental Studies Council of the University of North Carolina resulted in a directory on May 1, 1980 of faculty in 38 North Carolina four - year colleges and universities who are available for this purpose. The listing of names is categorized by the nature of the waste product. A copy of the directory may be obtained by contacting Dr. David A. Adams, Division of University Studies, North Carolina State University, Raleigh [(919) 737-2815].

Another directory of experts, on an international basis, is available from the World Environment Center entitled "Contact: Toxics - Guide to Specialists on Toxic Substances" by Richard Penberthy, Editor. (World Environment Center, UNA-USA, 300 East 42 Street, New York, N. Y. 10017; \$49.50).

Finally, it would be a mistake to overlook the large number of specialists in this subject employed by non-profit research organizations such as the Research Triangle Institute and the Chemical Industry Institute of Toxicology in the Research Triangle Park. Also, the Environmental Protection Agency and the National Institute of Environmental Health Sciences in the Research Triangle Park have experts who are available on request for assistance to states.

3. Waste Information Exchange

The Task Force believes that it is very important that a Waste Information Exchange be established in North Carolina to facilitate the sharing of information on reusable waste

material and waste management technology. The advice of experts and experiences in other states and in Europe indicates that an exchange which actually acquires and resells wastes is not economically feasible in North Carolina at this time. The Task Force believes, however, that an "information" exchange would be most beneficial to the state and that every effort should be made to make it self-supporting.

The Technical Advisory Committee on Hazardous Waste has recommended that an exchange be operated by a non-governmental agency because of the possibility that waste generators would be hesitant to divulge trade information to a government agency for fear that the public would have access to such information as "public records". This concern can be resolved by adopting a state law which classifies this information as confidential. The Task Force is therefore of the opinion that the exchange can be operated by a public agency as well as a private organization.

One exchange, the Piedmont Waste Exchange, has already been established in Mecklenburg County by the University of North Carolina at Charlotte.

The Task Force recommends that the Governor's Waste Management Board study and decide upon a plan for working with the Piedmont Waste Exchange and any other existing organizations to establish a successful exchange. The Task Force also recommends that a request for appropriations adequate to plan and further develop the exchange be made to the 1981 General Assembly, either through further development of the Piedmont Exchange or development of an additional facility if needed.

4. Tax Incentives

Tax incentives can play an important role in encouraging generators to develop or expand their capability to reduce and

treat waste generated in the plant. A tax incentive already available for this purpose in North Carolina is accelerated depreciation. Accelerated depreciation is now authorized for air cleaning equipment, sewage and waste treatment plants, and pollution abatement equipment under G.S. 105-130.10 (Amortization over 60 months is authorized). Another available tax incentive is the exclusion from the property tax base for real estate and equipment used for air cleaning, waste disposal, air and water pollution treatment, and recycling and resource recovery [G.S. 105-275(8)].

There is precedent in North Carolina law for other forms of tax incentives. Credits against corporate income tax are authorized now for construction or installation of solar hot water heating and cooling equipment (G.S. 105-130.23), construction of cogenerating power plants (G.S. 105-130.24), and conversion of industrial boilers to wood fuel (G.S. 105-130.26). The law could be changed to provide explicitly that hazardous and low-level radioactive waste treatment and disposal equipment are also eligible for this type of credit.

There are other types of tax incentives that could promote the waste reduction, recycling, and treatment goals that the Task Force advocates. The Task Force recommends that legislation be enacted to create those tax incentives that would be most feasible and effective in North Carolina.

The Task Force has also considered the possibility of establishing disincentives to generating waste, such as direct tax on such waste. However, the Task Force believes that the cost to generators for transporting and disposing of waste according to current state and federal regulations will provide an effective disincentive for the generation of waste, thus performing the same function as a tax.

F. Facility Development and Operation

The Task Force concluded that the private sector is better prepared and capable of developing and operating waste treatment and disposal facilities than the state. It is, therefore, recommended that the state's role in facility development be initially limited to seeking qualified private firms that are interested in locating recycling, volume reduction and disposal facilities in North Carolina, and assisting such companies in contacting willing communities with suitable sites.

The Department of Commerce is the state agency with the existing capability and experience to lead efforts to identify and attract the most qualified waste management companies to North Carolina. This function must be carried out in close coordination with the Departments of Human Resources and Natural Resources and Community Development.

There is the possibility that private industry might not respond adequately or quickly enough to meet the pressing need for treatment and disposal facilities in the state. Consequently, it is necessary that state government be authorized and prepared to acquire approved sites, and to own and operate them or to enter into lease agreements to carry out these functions. The Task Force believes that the Secretary of DHR should have the authority to carry out these functions. In doing so, the Secretary should consult with the Governor's Waste Management Board, as the primary mechanism for gathering information and opinions from the various agencies and the public.

There are many stages involved in developing a waste facility. The Task Force has analyzed each of these stages to determine what the state's role should be to ensure that the functions are carried out according to the best interests of the public.

1. Developing Site Selection Criteria

The Task Force believes that site selection criteria should ensure maximum protection for the public's health and safety and the environment. Criteria for hazardous waste facilities are being finalized by EPA under the RCRA. The primary responsibility for implementing these criteria in North Carolina is now assigned to the Department of Human Resources. However, siting criteria for low-level radioactive waste facilities are not well developed. The Task Force recommends that the Governor's Waste Management Board work with the NRC and the EPA to expedite development of these criteria. The Board should also provide assistance when necessary to coordinate input from state agencies with expertise on criteria related to such matters as water quality, air quality, land quality, and balancing such factors as proximity to generators, transport distance and associated hazards, and distances from populated areas.

2. Screening and Monitoring Areas Generally Suitable for Sites

The Task Force believes it is necessary to move quickly to identify sites that meet the applicable geological and hydrological criteria and to initiate facility design, site monitoring and other preconstruction activities. It is also desirable that consideration be given to siting facilities as close as possible to the sources of wastes to minimize transportation risks.

3. Final Decisions Concerning Facility Sites

Recent experiences in North Carolina and other states document the very real possibility that resistance and exclusion by localities may be pervasive enough to prevent the needed waste management facilities from being developed. Many other states are convinced of the seriousness of this problem and have either

proposed or adopted laws which guarantee that the state has final siting authority for these types of facilities. This policy has been endorsed by the National Governor's Association.

The Task Force gave a great deal of consideration to this issue and recommends that every effort be made to find suitable sites in receptive communities. It is in the best interest of the citizens of the state to ensure that sites are available for these facilities. If this approach is not successful, however, the state must be in a position to make a final decision on a site location.

In the event that a facility siting is prevented by local ordinance(s) or that the local governing body has formally adopted a position of opposing a proposed facility, the Waste Management Board shall meet after being petitioned by the facility developer. After reviewing the petition and pertinent information, the Board shall make a recommendation to the Governor after determining whether: (1) the proposed facility is necessary to establish adequate capability for the management of hazardous and low-level radioactive waste generated in North Carolina, and therefore serves the interest of the citizens of the state as a whole; (2) all legally required state and federal permits or approvals have been issued by the appropriate state and federal agencies; (3) local citizens and elected officials have had adequate opportunity to participate in the process; and (4) the existence of the facility would pose an unreasonable health risk or other adverse effect to the community and steps have been taken to anticipate, manage, and avoid all foreseeable risks.

After receiving the recommendation from the Board, the Governor should be authorized to reject the recommendation or approve it, and thereby make a final siting decision. This decision shall have control over any applicable local ordinance, acts, or rules.

In order to facilitate a cooperative state/local approach to siting facilities, the Task Force recommends that localities in which waste storage, treatment, or disposal facilities are proposed should be encouraged to form local siting advisory committees. More specific recommendations concerning the purpose, organization and functions of such committees are set out in Subchapter H, Citizen Involvement.

4. Compensation to Localities in Which Facilities are Located

The Task Force strongly supports the principle that the generators of waste should pay all costs directly and indirectly associated with treatment and disposal of their waste. In keeping with this principle, the Task Force recommends that localities be given the statutory authority to establish a privilege license tax on waste handled by off-site treatment or disposal facilities located within their jurisdiction, subject to review and approval by the Governor's Waste Management Board. Such taxes should be compensatory in nature, and should therefore be limited by statute to an amount or rate that is reasonably related to the direct and indirect costs incurred by the locality as a result of the facility operation. Permissible costs should include expenses associated with fire and other emergency protection, measures to ensure safe traffic patterns and transportation, and any local health and environmental monitoring designed to supplement the state's monitoring programs. In addition, localities should be authorized to recoup any real property tax revenues that are permanently lost because of state ownership of land on which facilities are located or the lowering of property values on adjacent land. The former will be particularly applicable to burial facilities because of the recommendation that the State acquire title to any land on which hazardous or low-level radioactive wastes are buried.

5. Acquisition and Ownership of a Facility Site

The Task Force believes that private companies have the necessary capital and are best able to acquire sites. On the other hand, it is recommended that the Council of State, upon receiving a request from the Secretary of the Department of Human Resources, be authorized to condemn land for necessary facility sites where private acquisition fails or when the state decides to initiate site development. This authority should be used only as a last resort after the Secretary has consulted with the Governor's Waste Management Board and made a determination that a particular facility is necessary to the establishment of adequate waste treatment capability in North Carolina. In such cases, the state might later lease or sell the site to a private company that wants to build and operate a facility.

In the case of burial facilities, the Task Force believes it is necessary that the state have immediate and unlimited access for monitoring and inspection. The state should therefore be authorized to require private companies that purchase burial sites to give title to the land to the state in exchange for a lease-back or similar legal agreement. The agreement would guarantee that the company could use the site for as long as it desires and remains in compliance with all state and federal regulations. Such an arrangement is not necessary for treatment or storage facilities that do not entail burial.

6. Financing the Facility

The Task Force is of the opinion that the state should not provide any new subsidies for waste management facilities, with the possible exception of experimental facilities offering promising new technology. Private capital is ordinarily available for such facilities.

Industrial revenue bonds are presently available for pollution control facilities, and the Task Force recommends that any necessary steps be taken to make such bonds available to finance reduction, recovery and recycling facilities, but not storage or burial facilities.

Before a pollution control facility may be approved for such bonds by the Department of Commerce, the DNRCD must certify that the facility will have a materially favorable impact upon the environment, or will prevent or diminish materially the impact of pollution which might otherwise occur. The Task Force recommends that a similar requirement be established whereby prior to receiving approval for industrial revenue bonds, the Department of Human Resources must certify to the Department of Commerce that the facility will promote waste management goals in North Carolina and will not have an adverse effect upon public health or the environment.

7. Construction and Ownership of the Facility

The Task Force believes that the private sector is better suited for moving expeditiously to build waste facilities because they have access to major capital funds and have established technical expertise. The Task Force further believes that there are private companies with the necessary capital who are interested in locating facilities in North Carolina.

The state should be clearly authorized to build and own a facility if the private sector fails to respond within a reasonable time. The Secretary of the Department of Human Resources should be authorized to determine, after consulting with the Governor's Waste Management Board, when it is necessary to exercise this authority.

8. Operating and Monitoring the Facility

The Task Force believes that a facility should be operated in the safest possible manner. Private companies are better prepared to assume these management functions and a state regulatory agency is likely to regulate a private company better than it would regulate itself or another state agency.

The Task Force recommends the strictest, most thorough monitoring of facility operation, including the environment and the human, plant, and animal life in the area. Such monitoring is primarily a state responsibility. However, the Task Force recommends that localities use revenues from the privilege tax to establish under the supervision of the local health department or other appropriate group the capability to coordinate with and supplement the state's monitoring programs.

The Department of Human Resources has primary responsibility for monitoring health in the state whereas DNRCD has the expertise and responsibility for monitoring environmental effects. These two agencies should coordinate monitoring activities in consultation with the Governor's Waste Management Board.

The Task Force recommends that serious consideration be given to assigning state employees to work on site at facilities that are large enough to justify such an approach. This is especially important in the case of burial of low-level radioactive or hazardous waste in order to verify package labeling and inspect containers. The cost of such monitoring should be borne to whatever extent practicable by a fee or tax on the waste handled by the facility. The Task Force recommends that the Governor's Waste Management Board determine whether the Secretary of Human Resources presently has adequate authority to establish such a fee as a part of the facility permitting process.

The Task Force recommends that provisions be made to allow periodic public visitation and inspection of facilities by designated representatives. In addition, there should be a requirement that a periodic report be made to the public on the operation of the facility.

The Task Force recommends that adequate remedies, including criminal and administrative penalties and injunctive relief be statutorily authorized for any violations of regulations stemming from facility operation.

9. Closure and Post-Closure Care of Land Containment Facilities

Every precaution must be taken to ensure that closure and long-term care of land containment facilities are handled in the most thorough fashion possible by the operator under close supervision by the state. The cost should be covered to the greatest possible extent by the generators that use the facility. This policy is in keeping with the present requirements of North Carolina's hazardous waste management regulations. Under state and federal regulations, facility owners have the responsibility for proper closure of all facilities and, in addition, are responsible for post-closure monitoring of land containment facilities for a 20-year period. The facility owner is required to provide a bond, insurance, or other type of fund to cover post-closure monitoring and preventive maintenance as well as liability for damages for 30 years after closure. Also, the funds should cover tax loss revenues to the local community after closure.

The Task Force recommends that similar regulations should be established for low-level radioactive waste facilities. The statutory amendments necessary to authorize such regulations should be made. The Task Force further recommends that the Governor's Waste Management Board closely monitor and evaluate the adequacy of these closure and post-closure regulations for

both types of waste and to encourage the Division of Health Services to ascertain any possible health problems.

10. Additional Liability Considerations

It is necessary for the public to be assured that adequate liability coverage is carried for a hazardous or low-level radioactive facility during both the life of the site and after its closure.

Under Federal law, the facility operator must assume primary responsibility for liability during site life and for 30 years after closure. This is accomplished by the operator providing adequate liability insurance during this period. The Task Force feels that the issue of whether the state should provide back up liability insurance during this period also must be considered. One reason for this is the possibility that the insurance coverage is inadequate to cover damages.

The question of post-closure liability is even more critical. The operator's liability extends 30 years after closure. Injuries from these facilities may occur after the 30 year period has ended. Since the operator's responsibility has ended and the state has title to the land, the state must be in a position to assume responsibility for monitoring the site, remedying any problems that become apparent, and, if necessary, compensating for damages caused by the facility. The Task Force recommends that the state be authorized by statute to charge a tax or fee on the waste handled by burial facilities in order to establish a central fund sufficient to pay the cost of post-closure monitoring and care and to compensate for any damages that might occur after the operators' 30-year period of liability has ended. This approach is consistent with the general policy of passing all waste management costs to generators and is already being used by South Carolina.

The state assumption of liability is clouded by the doctrine of sovereign immunity, which makes the state immune from liability unless it has consented to be liable by statute. North Carolina has consented to limited liability by the North Carolina Tort Claims Act, which allows people injured by negligent acts by the state to recover up to \$100,000. This statute would probably apply here, but the amount of recovery is limited.

The Task Force recommends that the Waste Management Board study whether the state should waive sovereign immunity by statute during the post-closure period. This could be accomplished by a specific statutory waiver and the purchase of liability insurance out of the above-recommended fund. Such waiver is likely to promote acceptance and enhance credibility in the state's efforts to enforce the regulations as stringently as possible.

G. Emergency Response and Cleanup

The citizens of North Carolina must be provided protection from the immediate threat posed by hazardous waste related emergencies such as spills and accidents, and from environmental degradation associated with abandoned waste dumps or storage facilities. A federal "superfund" bill was passed recently by Congress. This law provides \$1.6 billion to be used to clean up abandoned waste dumps and spills or other discharges. This fund cannot be used to compensate for personal damages that might be caused by such spills or discharges.

There are certain limitations on the use of the federal "superfund" that make it inadequate to meet the emergency response needs of North Carolina. The main part of the fund will be used to clean up certain targeted existing hazardous sites which have been determined to be major problems. There will be a remaining contingency fund to which the states will have access for dealing with major emergencies that

arise or are discovered in the future. However, the funds will not be available for smaller emergencies which might pose a risk to North Carolina's citizens or environment.

North Carolina has an existing system for emergency response to deal with smaller emergencies. The Department of Crime Control and Public Safety is responsible for planning, organizing and directing initial response to hazardous waste emergencies. The Division of Environmental Management (DNRCD) is authorized by statute to clean up hazardous waste discharges, but funding for this has been inadequate. To give the state the capability to clean up hazardous waste problems that do not qualify for the federal "superfund", it is recommended that sufficient funds be appropriated by the Legislature to DNRCD to deal with abandoned waste dumps and the full range of hazardous waste related emergencies that are not covered by the "superfund." The Governor's Waste Management Board should continue to monitor the adequacy of emergency response and clean-up efforts in North Carolina as well as to see that the appropriate steps are taken to find and clean up the "orphan dump sites".

H. Citizen Involvement

Meaningful citizen involvement and participation are critical to developing an effective waste management system in North Carolina. Mechanisms should be developed to provide ample opportunity for citizen involvement in ongoing policy development and decisions concerning proposed facilities.

The Governor's Task Force was composed of representatives from state and local governments, higher education, environmental groups and industries associated with the generation of hazardous or low-level radioactive waste. The Task Force attempted in various ways to solicit, receive and give consideration to public opinion during its deliberations. Notices of meetings were distributed to the press, interested citizen groups and organizations as well as to individuals who indicated an interest in receiving them. Time was

made available at the end of each meeting for the public to make comments.

Members of the Task Force met with representatives of the major newspapers throughout the state to familiarize them with the state's waste management problem. Radio and television programs were also broadcasted to educate more fully the general public. The Department of Human Resources has made its toll-free telephone line (1-800-662-7030) available for citizens to call to express their opinions and concerns on this subject as well as to request information.

The Task Force held seven public meetings in late January, 1981 at seven locations across the state to receive public comments on its draft report and recommendations. The opinions and information received at these meetings were presented to the Task Force for its consideration before the report and recommendations were finalized and presented to the Governor. In view of the short time frame for public comment, the Board should continue to seek public reaction to the final report of the Task Force.

In order to ensure citizen input into ongoing policy development, monitoring and evaluation of the effectiveness of the state's waste management system, the Task Force recommends that the Governor's Waste Management Board be structured to represent a broad variety of citizen viewpoints. As recommended, the majority of the members of the Board would be from outside of state government in order to incorporate a wide variety of interests and viewpoints. The specifics of the recommended membership of the Board are discussed in more detail in Subchapter C, "Organizational Arrangements - The Governor's Waste Management Board".

The Task Force recognizes that waste management facilities have met with much suspicion and resistance from citizens in the locality of the proposed site. This reaction is due, at least in part, to poor communication between the facility developer, the state regulatory

agencies, and the local citizens. Past experience in other states indicates that early and thorough public participation and education must be encouraged in the facility siting process.

Local Facility Development Committees

To facilitate early involvement of local citizens, the Task Force has recommended that DHR notify the locality as soon as an application for a facility permit is received. In order to promote thorough local involvement throughout the siting process, the Task Force strongly recommends that local facility development committees be established in all localities in which a facility is proposed. These committees would serve as a forum for exchange of information and opinions between state regulatory agencies and the involved locality. This should provide state agencies with a means for understanding and addressing local concerns. This approach should help to avoid misinformation and distrust by subjecting the decision-making process to an open forum.

The formation of such advisory committees should not be made a legal requirement but should be optional according to the preference of the local governing body. Nevertheless, widely based local participation is vital and the Task Force strongly recommends that committees be formed, organized, and operated along the following lines.

1. Organization: Suggested representation on the Local Facility Development Committee consists of the following:
 - a. Citizens organizations
 - b. County government
 - c. Municipal government

- d. Local industry/commerce
 - e. Local health/environmental agencies or groups
 - f. Local educational/research institutions
 - g. Local transportation/shipping interests
 - h. Agricultural interests
2. Appointment of Members: Nominations may be made by anyone from the groups or agencies to be represented. Appointment of the Committee should be made by the county commissioners, with one commissioner representing county government.
3. Functions of the Committee
- a. To meet with state and private representatives to determine nature, scope and proposed location of facility under consideration.
 - b. To participate in planning public meetings, distribution of information and such other steps that should be taken fully to inform all people of the county, community or relevant area of what is being proposed, including the advantages and disadvantages.
 - c. To take steps, in conjunction with state government and private representatives, to ensure that response is made to questions and concerns of the citizens of the affected area insofar as available knowledge and understanding permit.
 - d. To recommend to state government and private industry those measures that should be taken to make the location of the facility acceptable to concerned citizens, should a

decision be made to locate the facility. Examples of such measures include the following:

- On-going monitoring of plants, wildlife and human health.
- Provisions for fire and other emergency protection.
- Changes in traffic patterns and other transportation measures to enhance safety.
- A "waste management fee or tax" to be used to offset the additional costs of the facility on the community.
- In the event that the local committee concludes that the facility should not be located where proposed, so state and give reasons.

The Governor's Waste Management Board may receive the recommendations of the local facility siting committee along with state agency recommendations regarding siting the proposed facility.

CHAPTER VI

STRICT LIABILITY CONSIDERATIONS

One of the most important considerations in public acceptance of a waste management system in North Carolina is the assurance that persons harmed by the generation, storage, transportation, treatment, and disposal of wastes will be adequately compensated.

The Task Force believes that both hazardous and low-level radioactive wastes have an inherent potential to harm property, business, and people. The risk of such harm may be very low if proper precautions are taken, but the amount and nature of the harm may be very great. The Task Force also believes that the primary liability for damages resulting from waste management activities should be borne by generators, transporters, storers, and facility operators. This basic premise must be balanced against the need for North Carolina to have waste facilities and the benefits that result from a well designed and operated waste management system. With these considerations in mind, the Task Force discussed at length the idea of providing strict liability by statute for activities associated with handling hazardous and low-level radioactive wastes. The Task Force favors in principle the adoption of this concept in North Carolina but is concerned about the possibility that the cost of liability insurance might have the effect of preventing facilities from locating in the state.

Strict liability is a legal doctrine which imposes liability without fault on a person or company whose activity has caused damage to another person. This is in contrast to most actions for damages in which it must be shown that the company or person(s) who caused the damage was at fault, i.e. negligent. If strict liability is applied in the waste management system, a damaged person will still have to prove that the damages were caused by wastes that were under the control of the party being sued. Such proof is difficult enough when dealing with waste substances which have many properties and effects that are still unknown. To require proof also that the party in control of the waste which caused the damage was negligent

has the effect of making recovery of damages more difficult and expensive to the point that it may become infeasible or discourage the suit from being instituted.

Strict liability has already been imposed by North Carolina courts on activities that are considered ultrahazardous or abnormally dangerous in character, such as blasting or keeping dangerous animals. There is the possibility that courts would find activities associated with hazardous or low-level radioactive waste to be ultrahazardous and thus judicially impose the doctrine. The Task Force feels, however, that imposing the doctrine by statute would enhance public acceptance of the waste management system and show that there is concern that people who have been harmed will have the greatest possible chance of recovering damages.

One state (viz. Pennsylvania) has already adopted a standard of strict liability for waste transporters and facility operators by statute adopted in July, 1980. The State of New Jersey is currently considering an act establishing a limited form of strict liability. The act was passed by the State Senate in January, 1981, and is now being considered by the House of Representatives. Although it is too early to be certain of the effects of such a law, waste generators, transporters, and facility operators in Pennsylvania have apparently accommodated strict liability without discontinuing operation. The Task Force believes that North Carolina should also attempt to do so.

There are several complex legal issues that must be studied and resolved before strict liability is adopted. Among these are the questions of statutes of limitation, and whether to apply comparative or contributory negligence theories. Also, there are other methods for allocating financial responsibility for damages to waste generators which might be considered forms of strict liability. One method entails establishing a fund to pay for personal, property and environmental damages caused by waste. Such a fund can be administered by the state and paid for by an excise tax or similar charge levied on generators. The Task Force recommends the Waste Management Board form a committee of experts in this area of law to study the various approaches to strict liability and the

legal issues involved and advise the Waste Management Board on this matter.

CHAPTER VII
PUBLIC HEARINGS

The Governor's Task Force on Waste Management held seven public hearings between January 19 and 22, 1981. The hearings were held in Wake, Guilford, Cumberland, Pitt, Mecklenburg, Onslow, and Buncombe Counties. Copies of the Task Force's Draft Report were made available and widely distributed on January 12. The purposes of the hearings were to discuss the report and the recommendations contained in it and to receive comments from the public on how they might be improved.

The Task Force was aware that its tight schedule had limited the public's opportunity to review thoroughly the Draft Report before the hearings. Consequently, the public was encouraged to continue to submit written comments after the public hearings were closed and many did so in the ensuing weeks. Citizen involvement at the meetings was very good and many oral comments were received. The registered attendance at the meetings was as follows (all those who attended did not register, and by rough estimate the actual attendance was as much as 50 percent higher than the registered attendance):

<u>DATE</u>	<u>LOCATION</u>	<u>REGISTERED ATTENDANCE</u>
January 19	Wake County	248
January 20	Guilford County	200
January 20	Cumberland County	100
January 21	Pitt County	106
January 21	Mecklenburg County	124
January 22	Buncombe County	120
January 22	Onslow County	33

Those in attendance were encouraged to submit written or oral comments expressing their opinions and recommendations. Those comments and any written comments received during the week following the hearings have been summarized. Every attempt has been made to include all the comments without being repetitive, and to state them as accurately as possible. An asterisk has been placed beside those comments that were made most frequently.

Citizen reaction sheets were also made available to those who attended. The purpose of the sheet was to allow the attendees to give an opinion as to the importance of each of the sixteen recommendations in the Draft Report, and to indicate whether they agreed, disagreed or had no opinion concerning each recommendation. The approximately 330 citizen reaction sheets that were completed at the meetings have been summarized by listing the citizen reactions under the corresponding recommendation. No citizen reaction sheets were distributed at the Mecklenburg County meeting, but they were mailed to those who registered and several were returned.

It should be noted that the results of the citizens reaction sheets are not necessarily consistent with the comments that were made most frequently, particularly concerning the more controversial recommendations. For example, commentators frequently and consistently objected to authorizing the state to preempt or override local ordinances and condemn land for waste facilities, while a slight majority of those who completed the citizen reaction sheets indicated that they agree that the state should have these two types of authority.

The Task Force reviewed and gave serious consideration to the citizen reaction sheets and summary of citizen comments before finalizing its report and recommendations. Several important changes were made as a result. The summary of citizens' comments and recommendations includes the Task Forces' response to the comments that were most frequently made, and indicates any changes in the recommendations that were made as a result of those comments.

A. Summary of Citizens Comments and Recommendations Concerning Waste Management Received at Public Hearings Held January 19-22, 1981

1. THE GOVERNOR'S WASTE MANAGEMENT BOARD

- Is there really a need for another Board such as the one proposed?
- Industries that generate waste should not be represented on the Governor's Waste Management Board.

- The proposed Board's name should be changed to The Toxic Waste Reduction Board.
- Any policy-making Board should have balanced representation from all geographical parts of North Carolina and not be dominated by the Piedmont.
- The responsibilities for all matters of management, i.e. regulation, emergency response, transportation controls, enforcement, etc., should be consolidated under one Board or Agency.
- The chairperson of the Board should be someone other than the head of the agency that administers the waste management regulatory system.

RESPONSE: The Task Force is recommending that the chairperson be selected by the Governor. The chairperson should not be the Secretary or Commissioner of a state agency or his or her designee, and should not be in the employ of a waste generating industry. No more than two members representing waste generating industries should be selected to serve on the Board.

2. REGULATION AND ENFORCEMENT

- * - Penalties for violations of laws and regulations should be very strict. Violations should be a felony rather than a misdemeanor.
- The state must have adequate personnel to investigate individual water contamination problems and to monitor generally compliance with regulations and standards.
- North Carolina should have the statutory authority to be stricter than EPA regulations concerning hazardous waste. Present EPA regulations are not adequate.
- Local law enforcement officials, rescue squads, fire departments, etc. should be trained to enforce waste laws and regulations and react to emergencies.

RESPONSE: The Task Force is recommending that penalties for violations for both the Solid (and Hazardous) Waste Law and Radiation Protection Act be strengthened. The Solid Waste Law presently authorizes a maximum civil penalty of \$5,000 per day for each violation, and does not provide for criminal penalties. The Task Force is recommending that it be amended to increase the maximum civil penalty to \$10,000 per day and to provide that violations be a criminal misdemeanor. The Radiation Protection Act presently provides that violations are a criminal misdemeanor but does not provide civil penalties. The Task Force is recommending that it be amended to provide for civil penalties, with a maximum of \$10,000 per day for each violation. The Task Force believes that the civil penalties of up to \$10,000 per day will be a severe and sufficient deterrent to violations. However, only employees of the Department of Human Resources are authorized to assess civil penalties. Making violations a criminal misdemeanor will give all general law enforcement officials jurisdiction to stop and investigate probable violations, and to hold the alleged violator while representatives of the Department of Human Resources can reach the scene and investigate the possibility of assessing a civil penalty. Making violations a felony would not enhance this function, and would probably make successful prosecution more difficult.

3. DEVELOPMENT AND UTILIZATION OF WASTE MANAGEMENT TECHNOLOGY

- More research on radioisotopes is needed to enhance the ability to predict their potential for migration after burial.
- If the state is going to support research facilities (such as the proposed micro-electronics research center) that help attract waste generating industries, then the state should also support research on the waste impacts of those same industries and on better ways to recycle, reduce and treat the wastes they generate.

- * - Tax incentives for developing and utilizing methods for reducing waste and/or disincentives for producing waste, should be recommended.

RESPONSE: The Task Force believes that the cost to generators for transporting and disposing of waste according to the requirements of RCRA is likely to provide an effective disincentive for the generation of waste, and will thus perform the same function as a tax on the waste. The Task Force agrees that there are forms of direct tax incentives that should help reduce the amount of waste generated. Two possible approaches are an income tax deduction for capital expenditures for equipment used to make process changes to reduce the amount of hazardous waste generated, and a property tax exclusion for such equipment. G.S. 105-130.10 presently allows an income tax deduction for "the amortization over a 60-month period of the cost of purchasing and installing equipment or constructing facilities for the purpose of recycling or resource recovering of or from solid (and hazardous) waste." G.S. 105.275 (8)(b) presently allows an exclusion from local property taxes for real and personal property used for the same purposes. Neither statute is applicable to equipment used to modify industrial processes to reduce hazardous or low-level radioactive waste generation. The Task Force believes that it should be a basic state policy to create economic incentives to encourage industry to minimize generation of those wastes for which there is no other current alternative than permanent disposal. The Task Force has therefore recommended that the Waste Management Board study the matter and make recommendations to the General Assembly as soon as possible concerning amending these statutes and any other legislative steps that will provide incentives to reduce waste generation.

4. FACILITY DEVELOPMENT AND OPERATION

- * - The state should not have authority to preempt or override local ordinances. Every other option should be tried before such action is taken. A local community board could make just as good a decision about this matter as anyone else. A siting committee to improve local input is a good idea. The Board, not the Secretary of Human Resources should have final authority to preempt. (The comments on condemnation were similar.)
- Sites should not be forced on rural, politically-weak counties where generators are not located.
- More thought should be given to defining the criteria that will be used to decide whether the state should actively develop a facility (i.e. that the private sector is not meeting the need).
- Treatment and disposal sites should be located on state-owned lands wherever possible.
- Stronger steps should be taken to encourage or require treatment and disposal of waste on the site where it is generated. There was one suggestion that all generators be required to treat and dispose on site.
- The state should develop an adequate data base concerning distribution of waste on a site-by-site basis, and then develop a specific statewide plan for all facilities and their approximate location.
- Treatment facilities should be limited to a size necessary to handle existing demand in sub-state areas and should not be large enough to attract new generators or accommodate waste from other states. (There was a suggestion that every county be responsible for its own waste). More study is needed on the distribution of waste generated in the areas of the state so that the number, types, capacity and location of treatment and disposal facilities can be matched to in-state needs.
- Low-level radioactive waste should be incinerated and disposed of on-site.
- Localities should be authorized to zone areas suitable for facilities, based on low population density - for example, an average density of 2 people per acre for a 5-mile radius.

- Private companies are primarily profit-motivated and cannot be trusted to operate facilities in the safest manner.
- * - Above ground storage of wastes needs to be seriously considered.
- Incineration at sea on ships is a potentially superior long-range technique. North Carolina should support or actually build an incinerator ship.
- Before licensing a facility, there should be more attention to adequacy of local emergency response capability concerning fire, health, spills, law enforcement and other emergency problems.
- The state should not provide tax free bonds for facilities. If bonds or other financial aids are considered, a referendum should be a prerequisite for approval.
- Localities should be able to charge a fee or tax, and/or require a bond adequate to cover lost property values in proximity to site as well as other costs.
- All residents within a certain radius (25 miles was suggested) should have a choice of moving after being adequately compensated by the state, or of remaining with free medical monitoring provided by the state.
- Monitoring of facilities should be a county responsibility, with support from the state and federal government.
- State laws should be changed, if necessary, so that the state does not have to take the lowest bid for facility operators if the state becomes involved in developing a facility.
- * - The period of liability for an operator after closure of a site is not long enough - it should be in perpetuity. Taxpayers should not be stuck with the bill.
- Facility owners should be required to monitor a closed site perpetually.
- Bonds posted by facility owners to cover closure and post-closure expenses should not be held by private parties.
- The waste exchange and/or other mechanisms for encouraging recycling should be implemented.

RESPONSES: * The Task Force agrees that every other option should be tried before preempting or overriding local ordinances. However, the Task Force believes that it is in the best interest of the citizens of the entire state to ensure that North Carolina can develop the facilities necessary to manage safely the waste generated in this state. This entails establishing a mechanism to prevent localities from arbitrarily prohibiting needed facilities that are proposed for safe, suitable sites. The combined effect of such prohibitions could ultimately mean that there would be no sites available in the entire state. In response to requests that the state should only use the authority as a last resort, the Task Force has modified its recommendations so that local ordinances would not be generally preempted, but rather that a waste management facility developer be authorized to petition the Governor's Waste Management Board in the event that the facility is prevented by local ordinance(s) or that the local governing body has adopted a position of opposing the proposed facility. After reviewing the petition and pertinent information, the Board shall make a recommendation to the Governor after determining whether:

1. the proposed facility is necessary to establish adequate capability for the management of hazardous and low-level radioactive waste generated in North Carolina, and therefore serves the interest of the citizens of the state as a whole.
2. all legally required state and federal permits or approvals have been issued by the appropriate state and federal agencies.
3. local citizens and elected officials have been given adequate opportunity to participate in the process.

4. the existence of the facility poses an unreasonable health risk or other adverse effect to the community, and adequate steps have been taken to anticipate, manage, and avoid all foreseeable risks.

After receiving a recommendation from the Board, the Governor should be authorized to reject the recommendation or approve it and thereby make a final siting decision. The decision by the Governor shall have control over any applicable local ordinances, acts, or rules.

- * Efforts were made to determine if the above-ground storage alternative is used as an effective means to manage safely hazardous and low-level radioactive waste in other states. Based upon the inquiries made by the staff and members of the Task Force, it appears that this approach has not been fully developed or used as a waste management option. Only one state (New Jersey) is currently attempting to pass legislation requiring above-ground storage. The Task Force has added a recommendation that the Board continue study and research to determine with certainty if above-ground storage is a safe and feasible alternative and, if so, to begin to develop the necessary standards to implement such an approach. In the meantime, the Task Force recommends the use of such facilities for temporary storage only of those materials likely to be capable of recovery or detoxification.
- * The final federal regulations governing the issue of perpetual care by the operators have not been issued. The state, in any event, will assume this responsibility after the operator's legal responsibility has terminated. The state will monitor the facility until it is proven that it no longer poses a threat to the health and well-being of the citizens within the community. When the state assumes this monitoring responsibility it should waive its right

to sovereign immunity and consider obtaining liability insurance. The Task Force is recommending that the State be authorized to establish a fee or tax on burial facilities in order to build a fund adequate to pay for post-closure monitoring and care and for any damages caused by the closed facility.

5. CITIZEN INVOLVEMENT

- Local facility siting committees should be required in every locality where a facility is proposed.
- * - Local involvement should be provided in siting, managing, monitoring and inspecting facilities.
- * - Public participation and education are vital to waste management planning. Funds should be provided and a serious effort made to educate the citizens about North Carolina's waste management problem.

RESPONSES: * The Task Force is recommending that the Department of Human Resources notify the locality when an application is made for a permit to locate a waste management facility in the locality, and that the Waste Management Board establish a siting subcommittee to work with the locality to promote open communications between the facility developer, the locality, and the state. To facilitate this process the Task Force is also recommending that local siting advisory committees be formed by localities in which facilities are proposed. Such committees could be used by the locality and state regulatory agencies as a forum for exchanging information and opinions concerning the proposed facility. Localities might establish conditions in local permits or request that conditions be added to state permits whereby the facility operator would agree to periodic public inspection. The results of state monitoring and inspections should be made more available to local citizens. In addition, the Task Force has recommended

that localities establish the capability to coordinate with and supplement the state's inspection and monitoring programs, and that they be authorized to establish a privilege license tax on the facility in order to pay the costs of establishing such a capability.

- * Funds will be requested from the state and federal government to continue efforts to inform and involve the general public. This is a very critical component of the program and additional funds will be requested to adequately support it. The Task Force is recommending that the staff to the Governor's Waste Management Board include a person to work on public participation and education activities such as developing informational materials and coordinating public hearings and meetings.

6. EMERGENCY RESPONSE AND CLEANUP

- * - The state should establish a fund for cleaning up abandoned sites, as well as spills and similar emergencies. This fund should be paid for by generators, perhaps by means of an excise tax.
- A single state agency should be responsible for all aspects of emergency response and cleanup.
- The state and local governments should share emergency responsibility.

RESPONSE: * The Task Force recommends that the Department of Natural Resources and Community Development be appropriated adequate funds to cleanup spills and respond to similar emergencies.

7. TRANSPORTATION

- Transportation is an important concern. Emergency response groups should be formed for local transportation mishaps.

Every effort should be made to ensure that a safe transportation system is established.

- Insurance on transporters should be high. Bonding of transporters was suggested.
- Transport routes should be carefully designated and marked.
- Waste should not be transported through residential areas.

8. OTHER COMMENTS

- * - A consumer education approach should be tried. Techniques suggested were (a) labelling products that generate hazardous waste in their production, (b) making the list of generators easily available to the general public.
- * - New industry coming into North Carolina should be screened based on waste generated and discouraged if the volume or type of waste exceeds the state's treatment and disposal capability.
- * - Generators should pay for all costs of handling and regulating waste so that these costs will become a production cost and will be reflected in the price of the product.
- * - Generators and handlers should be held strictly liable for any damages caused by waste.
 - More attention should be given to defining the more radioactive types of waste so that they can be handled differently from the less radioactive types.
 - The state should concentrate on encouraging alternative ways of generating energy, thereby decreasing reliance on nuclear power and reducing its waste by-products. Some suggested that nuclear power be banned.
 - Any policy-making body should consider the costs associated with medical treatment, lost worktime, etc. as well as the benefits associated with salaries and economic stimulation when considering the economic value to the state of waste-producing industries.
 - Pesticides containers should be collected and disposed of at some central locations.

RESPONSES: * The labelling of products would have to apply to a tremendous number of consumer products. Although the Task Force agrees that it might promote consumer awareness and reduce consumption of goods that cause hazardous waste in their production, this approach would be an awesome undertaking and its feasibility should be studied by the Waste Management Board. The list of generators is currently a matter of public record.

* The Task Force recommends that the Department of Commerce work with the Department of Natural Resources and Community Development and the Department of Human Resources in improving procedures for assessing the potential waste generation of new industries and ensuring that the state is in a position to control and safely manage these wastes.

* The Task Force agrees that waste generators should pay all costs of handling waste and believes that the new "cradle to grave" regulatory program will cause such internalization of costs. The Task Force also agrees in principle that the costs of government regulation should be borne by generators and has recommended that localities be authorized to effectuate such an approach by levying a privilege license tax on waste facilities.

The Task Force has also recommended that the state study the possibility of establishing a similar charge to pay for its regulatory programs. Also, in furtherance of this policy, the Task Force has modified its report to recommend that tax free industrial revenue bonds be made available only for recovery and recycling facilities, and not for storage and disposal facilities.

* The Task Force favors strict liability and has modified its recommendations to state that it should be a state

policy that financial responsibility resulting from hazardous and low-level radioactive wastes be allocated to the greatest extent possible to those who generate and transport waste or operate treatment, storage, and disposal facilities. The Task Force recommends that the Governor's Waste Management Board study the possibility of furthering this policy by applying a standard of strict liability to generators, transporters, and facility operators, establishing a fund paid for by waste generators to compensate for personal, property, and environmental damages, and increasing liability insurance for facility operators above the amount presently required under RCRA regulations.

B. Citizen's Reactions to the Draft Recommendations of the Governor's Task Force on Waste Management Report

At the seven public hearings held to review the draft report of the Task Force, attendees were asked to fill out citizen reaction sheets responding to the draft recommendations of the report. Approximately 330 sheets were filled out, giving those in attendance the opportunity to 1) express their opinion on the importance of each of the sixteen draft recommendations and 2) to indicate whether they agreed, disagreed, or had no opinion on each draft recommendation. The following are the results of the citizen reaction sheets to each of the sixteen draft recommendations.*

CODE

IMPORTANCE

High = H

Low = L

AGREEMENT

Agree = Ag

Disagree = Disag

No/Opinion= N/O

*It is important for the reader to remember that the recommendations are written here as they were before the public meetings and there have been many changes in the final recommendations.

The Governor's Task Force on Waste Management recommends:

1. A comprehensive waste management system be developed which emphasizes prevention, resource conservation and recovery and minimizes the volume of waste to be placed on or buried in the land.

H---349

Ag.-----337

L--- 5

Disag.-- 7

N/O----- 0

2. A Governor's Waste Management Board, composed of a representative group of people and chaired by the Secretary of the Department of Human Resources, be created to advise the Governor on organizational and policy issues related to the development and operation of an effective waste management program for North Carolina.

H---239

Ag.-----218

L--- 79

Disag.-- 75

N/O----- 12

3. The private sector be given the lead responsibility for selecting appropriate sites and for developing and operating waste management facilities. The state should be given the authority to acquire land, and own, operate or enter into lease agreements for the development and operation of these facilities if the private sector does not meet the demand.

H---276

Ag.-----207

L--- 45

Disag.--112

N/O----- 11

4. The private sector be required to give title to the state for land which is to be used as a landfill containment facility for hazardous or low-level radioactive waste.

H---246

Ag.-----202

L--- 82

Disag.-- 98

N/O----- 23

5. The Council of State be given the authority to condemn land for the acquisition of suitable sites upon the recommendation of the Secretary of Human Resources.

H---248

Ag.-----170

L--- 71

Disag.--156

N/O----- 23

6. State laws be amended to enable pre-emption of local zoning laws pertaining to siting of waste treatment, storage, and disposal facilities. The Secretary of the Department of Human Resources should be authorized to exercise this authority after the Governor's Waste Management Board has determined the facility is essential to the health, safety, and welfare of the citizens of North Carolina. Prior to making a final decision, the Secretary must also (1) determine that the proposed site and facility meet all federal and state environmental, health, and safety standards (2) give local citizens an adequate opportunity to express their viewpoint and concerns, and (3) document and set forth the justification for overriding local concerns.

H---284

Ag.-----159

L--- 50

Disag.--157

N/O----- 13

7. Local governments be given the authority to establish a fee, surcharge, or tax based on actual costs and lost revenues associated with a waste management facility.

H---214

Ag.-----237

L---120

Disag.-- 67

N/O----- 29

8. The Department of Human Resources and Natural Resources and Community Development develop additional siting criteria for the development and operation of low-level radioactive waste management facilities.

H---243

Ag.-----257

L--- 69

Disag.-- 25

N/O----- 30

9. The state of North Carolina pursue the regional compact approach with its neighboring states for the safe management of low-level radioactive waste. Federal legislation which legalizes these compacts has been enacted and will become effective in 1986.

H---239

Ag.-----250

L--- 94

Disag.-- 38

N/O----- 29

10. A comprehensive plan for participation be included as an integral part of the State's waste management program. State procedures should encourage county commissioners to form local facility siting committees to guarantee local citizens' input in the decision-making process and provide for an open exchange of information on the proposed waste management facility.

H---274

Ag.-----303

L--- 67

Disag.-- 15

N/O----- 9

11. The state should promote research and development which is directed to solve waste management problems unique to North Carolina. The Board also shall recommend annually to the Governor a recipient for a "Governor's Award of Excellence" for outstanding achievement by an industry or company that makes technological advancements in this field.

H---209

Ag.-----248

L---112

Disag.-- 48

N/O----- 27

12. Funding be made available to the Waste Management Board for the development of a Waste Information Exchange. The Board shall also develop a plan for providing technical assistance and information to industries and request the necessary funding from the 1982 General Assembly to implement the proposed plan.

H---196

Ag.-----253

L---125

Disag.-- 28

N/O----- 28

13. An evaluation be conducted of the waste management program in North Carolina to determine its effectiveness.

H---212

Ag.-----296

L--- 91

Disag.-- 13

N/O----- 16

14. The Industrial Revenue Bond Act be amended, and any other necessary steps be taken, to make revenue bonds available for hazardous and

low-level radioactive waste facilities and to require that a facility must obtain a certification of eligibility from the Department of Human Resources before it can qualify for such bonds.

H---231

Ag.-----221

L--- 87

Disag.-- 62

N/O----- 30

15. The Governor's Waste Management Board conduct an on-going evaluation of current and proposed rules and regulations to ensure that the public's health and the environment are protected to the maximum extent possible. The Task Force also recommends that several amendments be introduced during the 1981 General Assembly to strengthen current laws. Those recommendations are discussed in Chapter V, Subchapter D.

H---249

Ag.-----261

L--- 42

Disag.-- 25

N/O----- 29

16. The Governor's Waste Management Board study the following issues and make recommendations for appropriate action to the Governor after receiving input from the general public.

- Should the state be compensated for actual cost of monitoring a waste management facility, and if so, what method should be used?
- Should the state legally impose a standard of strict liability for damages caused by generators, transporters, and operators of hazardous and low-level radioactive waste facilities. The Task Force favors some form of strict liability unless it would cause insurance rates to be so high as to be prohibitive.
- Should the state provide back up liability insurance in addition to what it is currently required from operators for the operation of waste management facilities?

H---259

L--- 33

Ag.-----259

Disag.-- 27

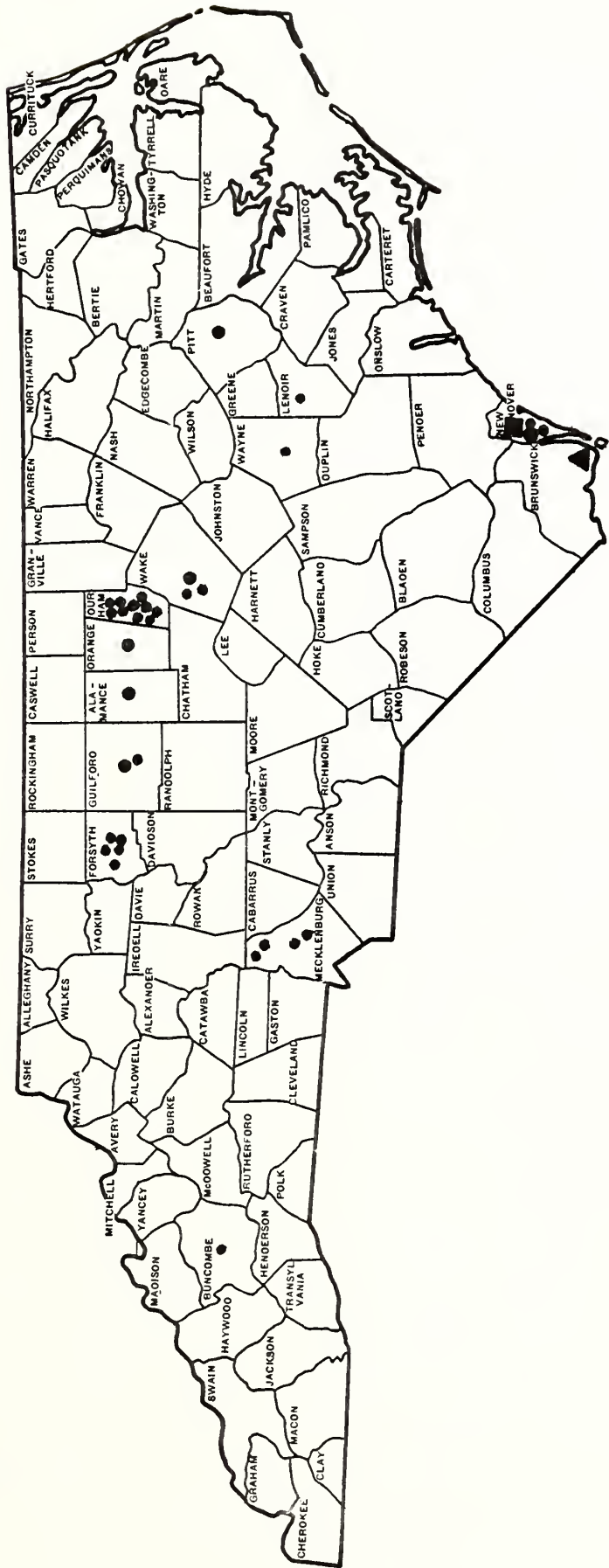
N/O----- 25

NORTH CAROLINA

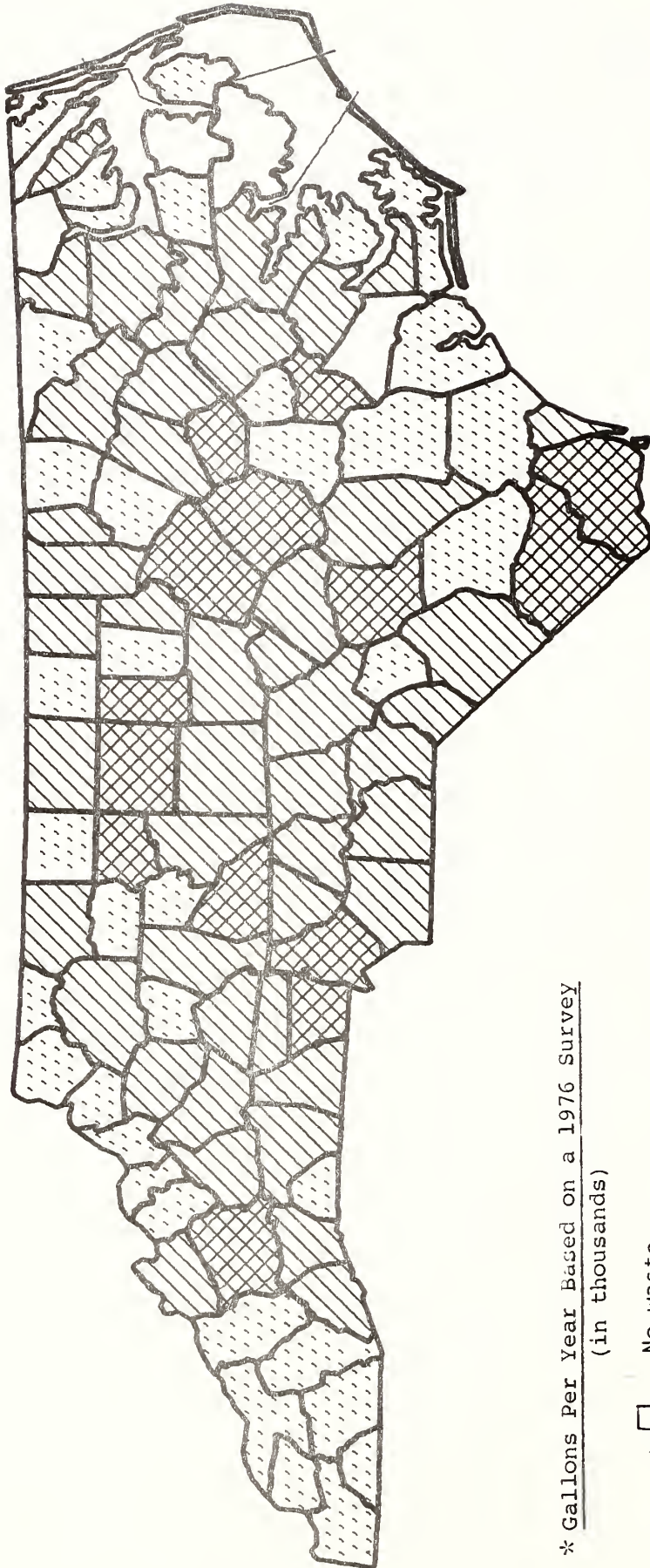
LOCATION AND CATEGORY OF LOW LEVEL RADIATION WASTE GENERATORS

- ▲ Operating Nuclear Plant
- Nuclear Fuel Manufacturer
- Medical, Research & Education

January 1981



PROJECTED CURRENT VOLUME OF HAZARDOUS WASTE GENERATED IN THE COUNTIES
OF NORTH CAROLINA*



* Gallons Per Year Based on a 1976 Survey
(in thousands)

- ☐ No waste
- ☒ Under 100
- ☒ 101 - 1,000
- ☒ 1,001 - 10,000

APPENDIX III
TABULATION BY COUNTY OF
HAZARDOUS WASTE GENERATORS *

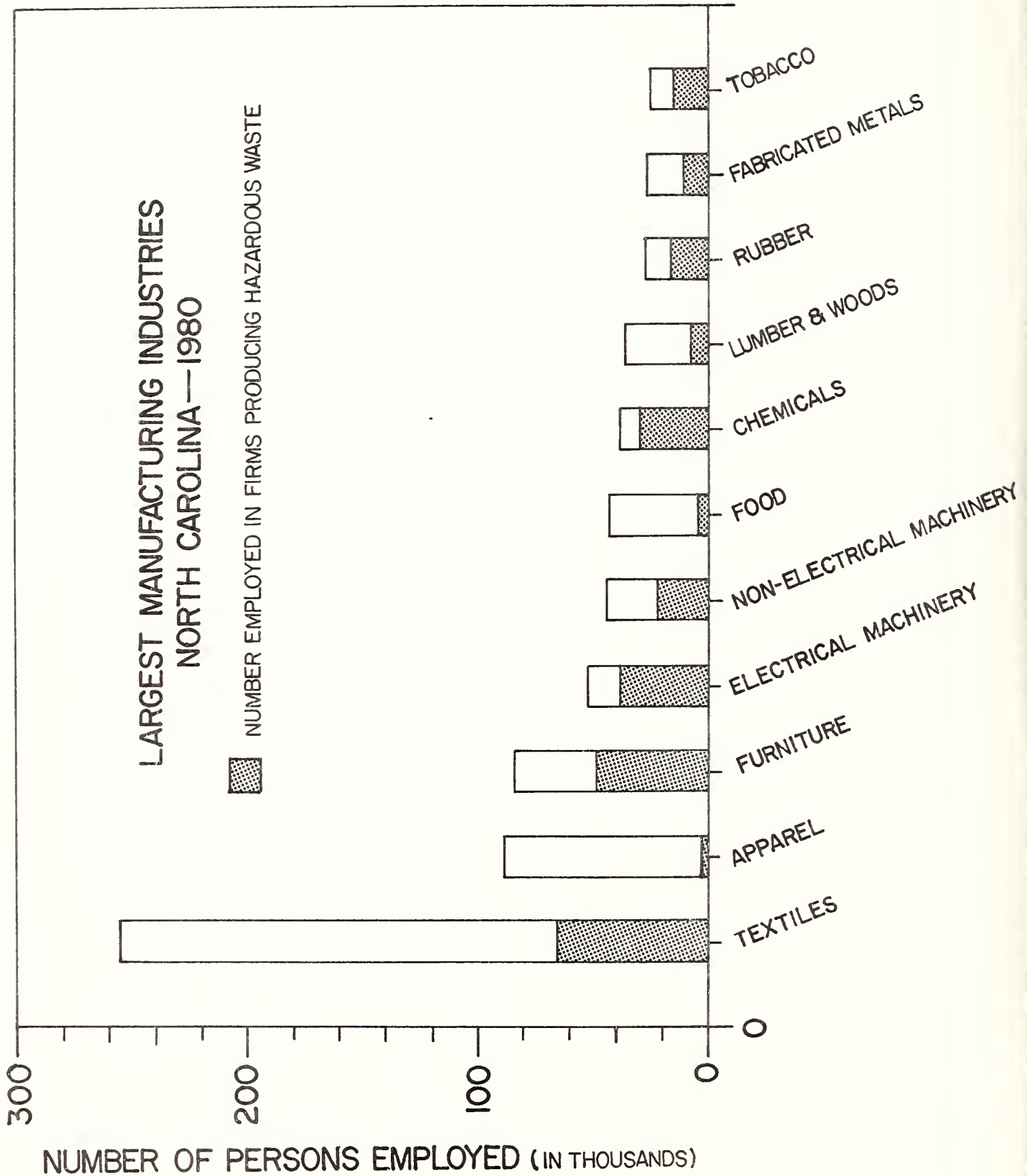
Alamance	23	Cumberland	51	Johnston	21	Randolph	18
Alexander	3	Currituck	1	Jones	--	Richmond	9
Alleghany	2	Dare	2	Lee	15	Robeson	38
Anson	7	Davidson	44	Lenoir	14	Rockingham	12
Ashe	2	Davie	4	Lincoln	7	Rowan	30
Avery	1	Duplin	11	McDowell	7	Rutherford	16
Beaufort	10	Durham	42	Macon	1	Sampson	9
Bertie	4	Edgecombe	18	Madison	2	Scotland	14
Bladen	5	Forsyth	54	Martin	6	Stanly	10
Brunswick	8	Franklin	2	Mecklenburg	159	Stokes	1
Buncombe	36	Gaston	37	Mitchell	4	Surry	12
Burke	24	Gates	--	Montgomery	1	Swain	1
Cabarrus	11	Graham	2	Moore	8	Transylvania	5
Caldwell	35	Granville	6	Nash	3	Tyrrell	--
Camden	--	Greene	2	New Hanover	41	Union	14
Carteret	3	Guilford	125	Northampton	5	Vance	4
Caswell	--	Halifax	22	Onslow	7	Wake	58
Catawba	51	Harnett	4	Orange	9	Warren	2
Chatham	9	Haywood	5	Pamlico	--	Washington	7
Cherokee	4	Henderson	14	Pasquotank	4	Watauga	5
Chowan	--	Hertford	13	Pender	--	Wayne	36
Clay	1	Hoke	4	Perquimans	1	Wilkes	11
Cleveland	13	Hyde	2	Person	7	Wilson	10
Columbus	12	Iredell	25	Pitt	21	Yadkin	2
Craven	16	Jackson	2	Polk	2	Yancey	<u>1</u>
							1,442

*These North Carolina industries, businesses, and public agencies notified EPA by August 18, 1980 that they were generators of more than 2,200 pounds of hazardous waste each month.

APPENDIX IV

LARGEST MANUFACTURING INDUSTRIES NORTH CAROLINA—1980

NUMBER EMPLOYED IN FIRMS PRODUCING HAZARDOUS WASTE



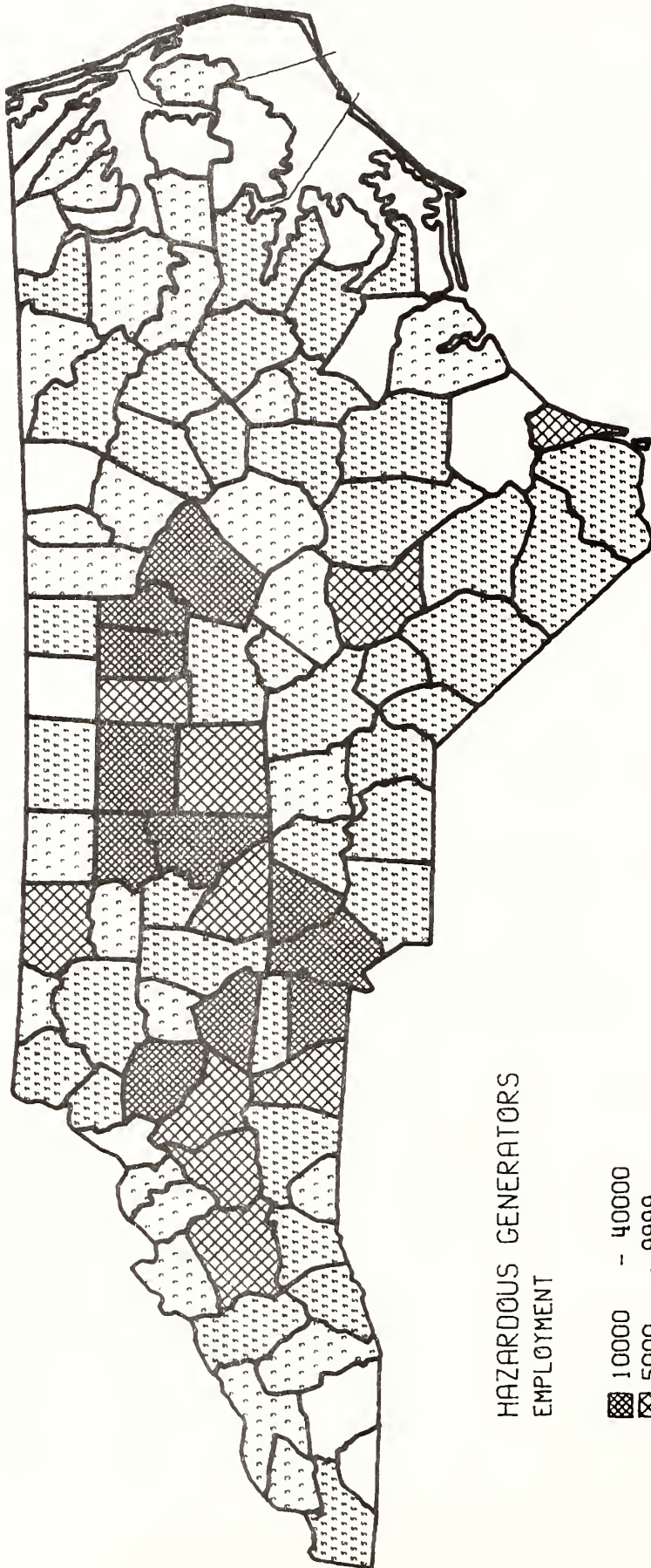
Appendix V

HAZARDOUS WASTE STUDY

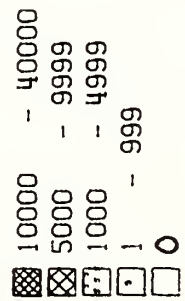
SUMMARY OF EMPLOYMENT AND WAGES OF IDENTIFIED FIRMS
(DATA FOR 1980)

STANDARD INDUSTRIAL CLASSIFICATION GROUP	NUMBER OF FIRMS	EMPLOYEES	ANNUAL WAGES (\$ MILLIONS)
AGRICULTURE PRODUCTS	4	43	.39
MINING	1	34	.29
CONSTRUCTION	4	24	.16
FOOD	11	3962	93.36
TOBACCO	8	17138	297.13
TEXTILES	95	65404	714.27
APPAREL	8	1906	16.22
LUMBER AND WOOD	45	6292	80.34
FURNITURE	103	48354	468.72
PAPER	26	10889	211.27
PRINTING	20	3463	44.62
CHEMICALS	104	34537	591.85
PETROLEUM	1	64	1.02
RUBBER	32	14740	203.01
LEATHER	9	2849	30.65
STONE, CLAY, GLASS	15	6142	92.09
PRIMARY METALS	9	2680	47.58
FABRICATED METALS	52	11754	175.28
NONELECTRIC MACHINERY	45	21304	355.60
ELECTRICAL MACHINERY	52	38618	592.40
TRANSPORTATION EQUIPMENT	32	10362	142.43
INSTRUMENTS	10	4648	64.17
MISCELLANEOUS MANUFACTURERS	7	1533	15.14
TRANSPORTATION, COMMUNICATION, PUBLIC UTILITIES	45	12664	238.13
WHOLESALE TRADE	78	3664	75.53
RETAIL TRADE	32	227	2.59
SERVICES	20	38397	529.97
GOVERNMENT	4	234	2.25
TOTAL	872	361,926	\$5,086,460

EMPLOYMENT IN INDUSTRIES GENERATING HAZARDOUS WASTE IN N.C., BY COUNTY, 1980



HAZARDOUS GENERATORS
EMPLOYMENT



APPENDIX VII

WASTE MANAGEMENT FUNCTIONS FOR NORTH CAROLINA

Throughout the discussions of the Governor's Task Force on Waste Management, the Management Role Working Group and the Town Meetings there has been interest in and concern for the development of a North Carolina STRATEGY or STATE PLAN.

The initial task of the proposed Governor's Waste Management Board is to develop the details of that STRATEGY or STATE PLAN. This STRATEGY or STATE PLAN would "provide a framework upon which the diverse activities of participating agencies can be coordinated and focused upon specific areas of responsibility consistent with the expertise, resources and statutory authorities of such agencies.... it [would not be] intended to relieve any agency of its statutory responsibilities for protection of the public health, safety or welfare."

As the North Carolina STRATEGY is developed certain waste management functions must be defined and implemented. The accompanying functions are ones that have been identified as of importance in North Carolina.

The attached charts are an initial attempt to define the general categories of waste management function and to identify the agencies and other groups that should be involved in developing and implementing these functions. These charts are not presented and should not be accepted as definitive. An attempt has been made to include the agencies and groups that have been discussed in the various meetings of the Task Force as well as those functions and agencies that have been identified specifically in responses to a questionnaire on this subject. These charts are meant to pass on to the Governor's Waste Management Board a general idea as to how it might organize itself to deal with the necessary functions of a comprehensive waste management system.

NAME OF FUNCTION	DESCRIPTION OF FUNCTION
Intergovernmental Cooperation and Coordination	Development, modification, if necessary, and supervision of a North Carolina Waste Management Strategy or Plan; intergovernmental (federal, state, local) coordination of activities, coordination of public and non-governmental involvement.
Information Management	Coordination, when necessary, of the several departmental information office responses; creation of a central point from which information can be made available -- for the public, for media, for policy and decision makers.
Citizen/Local General Purpose Government Participation	Designing a system of appropriate and targeted participation and comment; coordination of system with existing citizen councils, boards and commissions.
Technical Assistance (traditional state agency role)	Coordination of traditional state advisory programs and those offered in University system (e.g. Industrial Extension, NCSU) and developing programs as needed in Community College system.
Research and Development (Higher Education/Industry)	Encourage development of alternatives to production of toxic and hazardous waste materials stressing safe resource recovery and reduction, substitution of non-toxic materials for toxic, encouraging epidemiological research.
Regulatory Assessment	Assessment and recommendations for improving state and federal regulations and regulatory programs.
Rule-Making	Establishing and implementing rule-making procedures according to administrative procedures act.
Monitoring and Evaluation	Implementation of a continuing program that monitors closely and evaluates impact of toxic substances on the environment and the relation of that impact to public health.
Enforcement	Understanding, supporting and assessing the capability for surveillance, enforcement, and prosecuting and remedying violations.
Crisis Response	Understanding, supporting and assessing the North Carolina EMERGENCY RESPONSE PLAN; development of contingency plans, specialized training of emergency personnel, mitigation of environmental damages. Support the purchase and maintenance of response equipment.
Transportation	Delineating the transportation element of waste management from general functions; development of a specialized program that addresses transportation concerns of local government jurisdictions and public concern for health, safety and welfare.
Interstate Compacts	Development of regional compacts with neighboring states that leads to the establishment of a minimal number of facilities and provides maximal protection to health and the environment.

CHART I

INTERGOVERNMENTAL COOPERATION AND COORDINATION

(Report: GOVERNOR'S TASK FORCE ON WASTE MANAGEMENT)

Governor's Waste Management Board:

Department of Human Resources (DHR)
Department of Natural Resources and Community Development (NRCD)
Department of Commerce (DoC)
Department of Administration (DoA)
Department of Crime Control and Public Safety (CCPS)
Department of Transportation (DoT)
Department of Agriculture (DoAG)
Department of Labor (DoL)

Executive Director: Board of Science and Technology

11 representatives from Legislature, counties, municipalities,
higher education and public interest groups

(Chairman to be selected by Governor: non-member of regulatory state agency or waste-generating industry:
Housed in Department of Human Resources)

CHART II

INFORMATION MANAGEMENT	CITIZEN/LOCAL GENERAL PURPOSE GOVT PARTICIPATION	TECHNICAL ASSISTANCE (Traditional State Agency)	RESEARCH AND DEVELOPMENT (Higher Education/Industry)
Public Affairs or Public Information Offices of:	Existing Elements: DoA: State Goals and Policies Board	EPA	Lead Agency: DoC: N.C. Board of Science and Technology
Governor	Local Government Advocacy Council	DHR: Division of Health Services (DHS) Environmental Health Section	N. C. University System
DoA			
DHR			
NRCD			
DoC	DHR: Commission for Health Services	Radiation Protection Section	Private Universities
DoT			EPA
DoAG			Appropriate Industry Groups or Associations
DoL			Appropriate Professional Organizations
CCPS			
NRCD: Division of Community Assistance (DCA)	NRCD: Environmental Management Commission	NRCD: Division of Environmental Management (DEM) DCA	
North Carolina Association of County Commissioners (NCACC)	DoAg: Pesticides Board	Division of Soil and Water Conservation	
North Carolina League of Municipalities (NCLM)			
North Carolina City and County Managers Assoc. (NCCCM)	NCACC NCLM	DoC: Economic Development Divisions	
Institute of Government (IoG)		DoAg: Office of Agri-business Office of Consumer Services	
U.S. Environmental Protection Agency (EPA)		N. C. University System Community Colleges	
		IoG	

REGULATORY ASSESSMENT		RULE MAKING		MONITORING AND EVALUATION		ENFORCEMENT	
DHR:		By State Agency as appropriate		DHR: DHS		DHR: DHS	
Solid & Hazardous Waste Radiation Protection		DHR: Commission for Health Services		Solid and Hazardous Waste Radiation Protection Epidemiology		Solid & Hazardous Waste Radiation Protection	
NRCD:				NRCD: DEM		NRCD: DEM	
DEM		Radiation Protection Commission		Air Quality		Office of Legal Affairs	
Office of Regulatory Relations		NRCD: Environmental Management Commission		Water Quality		Office of Administrative Hearings	
CCPS				Groundwater			
Commerce:		DoAg: Pesticides Board		Office of Water Resources: Hydrology Section			
Utilities Commission							
Transportation Division				Office of Regulatory Relations		CCPS	
DoAg:				Office of Legal Affairs		DoC: Utilities Commission Transportation Division	
Pesticide & Plan Protection Division				DoC: Utilities Commission, Transportation Division			
Field Representation from state agencies				DoL: OSHA		DoAG: Pesticide & Plant Protection Division	
Appropriate citizen representation particularly environmental and industry groups				DoAg: Pesticide & Plant Protection Division		DoL: OSHA	
NCACC						-----	
NCLM						Commission of Health Services	
NCCCM						Radiation Protection Commission	
						Environmental Management Commission	
						Pesticides Board	

						Department of Public Instruction (safe use of toxics in schools)	

						emergency medical, public safety	

CRISIS RESPONSE	TRANSPORTATION	INTERSTATE COMPACTS
<p>Lead agency: CCPS</p> <p>See "North Carolina Hazardous Materials: Emergency Response Plan" CCPS: Division of Emergency Management, January 1981. Particularly, Annex C, p. C-1; Annex H, pp. H-1&2 (Organization Chart and Communications)</p>	<p>TO BE DEVELOPED</p> <p>Lead Agency: DoT</p>	<p>Office of Governor</p> <p>DHR</p> <p>NRCD</p> <p>CCPS</p>
<p>-----</p> <p>Should there be an assessment and/or planning committee set up under the Waste Management Board, it might not include only the many federal and state agencies coordinated by CCPS but field representation from state agencies, and appropriate public representation -- Civilian Defense Red Cross, United Way, Emergency Medical Personnel, Sheriffs, Police, Fire and Public Safety officers</p>		

ABBREVIATIONS

CCPS: DEPARTMENT OF CRIME CONTROL AND PUBLIC SAFETY
DoA : DEPARTMENT OF ADMINISTRATION
DoAG: DEPARTMENT OF AGRICULTURE
DoC : DEPARTMENT OF COMMERCE
DCA : DIVISION OF COMMUNITY ASSISTANCE (NRCD)
DEM : DIVISION OF ENVIRONMENTAL MANAGEMENT (NRCD)
DHR : DEPARTMENT OF HUMAN RESOURCES
DHS : DIVISION OF HEALTH SERVICES (DHR)
DoL : DEPARTMENT OF LABOR
DoT : DEPARTMENT OF TRANSPORTATION
EPA : ENVIRONMENTAL PROTECTION AGENCY
IoG : INSTITUTE OF GOVERNMENT
NCACC: NORTH CAROLINA ASSOCIATION OF COUNTY COMMISSIONERS
NCCCM: NORTH CAROLINA CITY COUNTY MANAGERS ASSOCIATION
NCLM: NORTH CAROLINA LEAGUE OF MUNICIPALITIES
NRCD: DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

ACKNOWLEDGMENTS

- A. The Task Force wishes to acknowledge and express its appreciation to the members of the two Technical Advisory Committees who contributed their time and expertise in preparing the reports which served as background materials and provided valuable sources of information.

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B. The Task Force wishes to acknowledge with gratitude the highly valuable information provided by the following guest speakers who presented different perspectives on the waste management problem. They all volunteered their time in preparing and delivering their presentations to the Task Force.

Dr. John Nemeth
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Mr. James Henry (and the Students)
Head of Media Services
North Carolina School of Science and Mathematics

Ms. Mary Kelly
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C. The Task Force wishes to express its special thanks to individuals who were not members of the Task Force but who volunteered their time to serve as a member of the Work Group on Public Participation. Their efforts were extremely valuable in developing ways to educate and involve citizens in this overall effort to seek an acceptable solution for North Carolina.

Mr. Jim McGough

Mr. Lee A. Krohn

Ms. Heidi G. Chapman

Ms. June Milby

Ms. Melinda J. Holland

Ms. Shirley Marshall

Ms. Jane Sharp

Mr. Terry Pierson

Mr. Rick Estes

Ms. Joyce Moore

Mr. David Long

Mr. Martie Groome

Mr. R. W. Reaves

Mr. Tommy Thompson

Mr. Barney Kane

D. The Task Force wishes to express their appreciation for the staff support provided by the Department of Human Resources. The Task Force acknowledges with gratitude the unceasing efforts of Lucy Bode in providing the administrative and logistical support necessary to complete its work on time. Special commendation is hereby accorded to Glenn Dunn who served as staff coordinator of the Task Force and whose legal knowledge was essential in highlighting many of the complex issues faced by the committee. The Task Force also wishes to thank David Swanson for assisting in the research of various management approaches being pursued by other states. Special thanks

is given to Russ Edmonston and Bryant Haskins for their assistance in writing and editing the report and for carrying out the necessary public information activities which included the development and distribution of a questionnaire. Special tribute is given by the Task Force to Vahnis O'Neal for making all the meeting arrangements and for preparing and disseminating the agendas and minutes of each meeting. They all worked many long hours and holidays to keep the Task Force's activities on schedule.

The Task Force would also like to express their appreciation to Alice Garland of the Department of Transportation and Shirley Marshall of the Department of Natural Resources and Community Development for the invaluable staff assistance they provided especially during its deliberations concerning the various management options.

The Task Force would also like to thank the following people for their advice and consultation on various issues under consideration by the group.

Professor Robert Byrd - UNC Law School

Professor Milton Heath - Institute of Government

Associate Professor Charles D. Liner - Institute of Government

Professor William A. Campbell - Institute of Government

Members of the Task Force wish to express their appreciation to the many members of the public and news media who attended meetings and volunteered their opinions regarding matters facing the Task Force. These expressions of opinion continue to reinforce in the minds of the Task Force members their responsibility to serve the interest of the general public.

